## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 18/024,517

Confirmation No.: 6509

Group No.:

Filing or 371(c) Date: 03 March 2023

Examiner:

Entitled: NOVEL SAFRYLAMINE DERIVATIVES HAVING PRODRUG PROPERTIES

## THIRD-PARTY PRE-ISSUANCE SUBMISSION

Examiner:

In re

The following documents, which are also identified in the Form PTO/SB/429 filed herewith, are submitted for your consideration as being of potential relevance to the examination of the present application.

1. US Priority Doc. No. 63/115,245 of US Pat. Doc. No. 17/518,846 "MDMA PRODRUGS TO ASSIST PSYCHOTHERAPY" (Priority doc filed 18 November 2020).

2. U.S. Pat. App. Doc. No. 2009/0131335 "ABUSE-RESISTANT AMPHETAMINE PRODRUGS" (Published 21 May 2009).

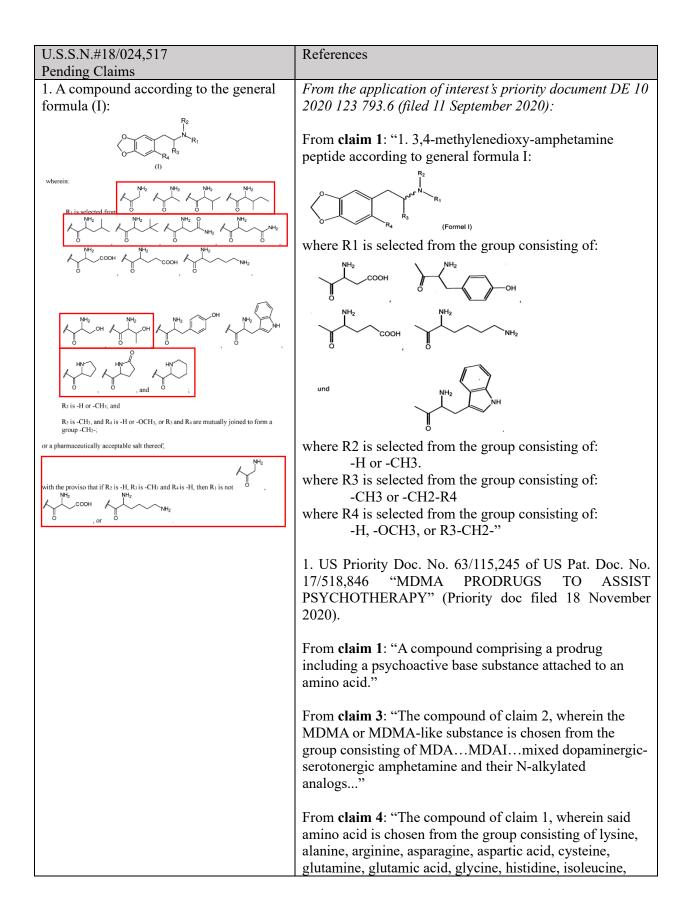
3. MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.

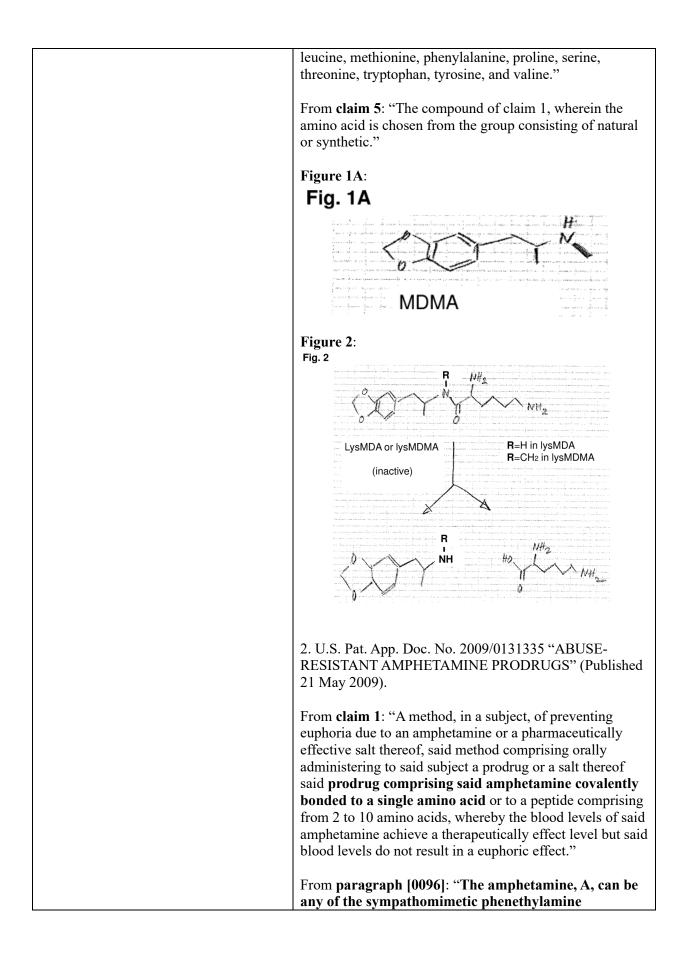
4. Gatch (2016) "Locomotor, discriminative stimulus, and place conditioning effects of MDAI in rodents" Behavioral Pharmacology, Vol. 27 (6): 497-505.

5. Nichols (1986) "Synthesis and Evaluation of 2,3-Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5-Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Journal of Medicinal Chemistry, Vol. 29 (2): 302-304.

6. Bahji (2019) "Efficacy of 3,4-methylenedioxymethamphetamine (MDMA)-assisted psychotherapy for posttraumatic stress disorder: A systematic review and meta-analysis" Progress in Neuropsychopharmacology & Biological Psychiatry, Vol. 96, 109735.

Attached hereto is a claim chart providing a concise description of the relevance of each reference in the document list to the elements of the presently pending claims.

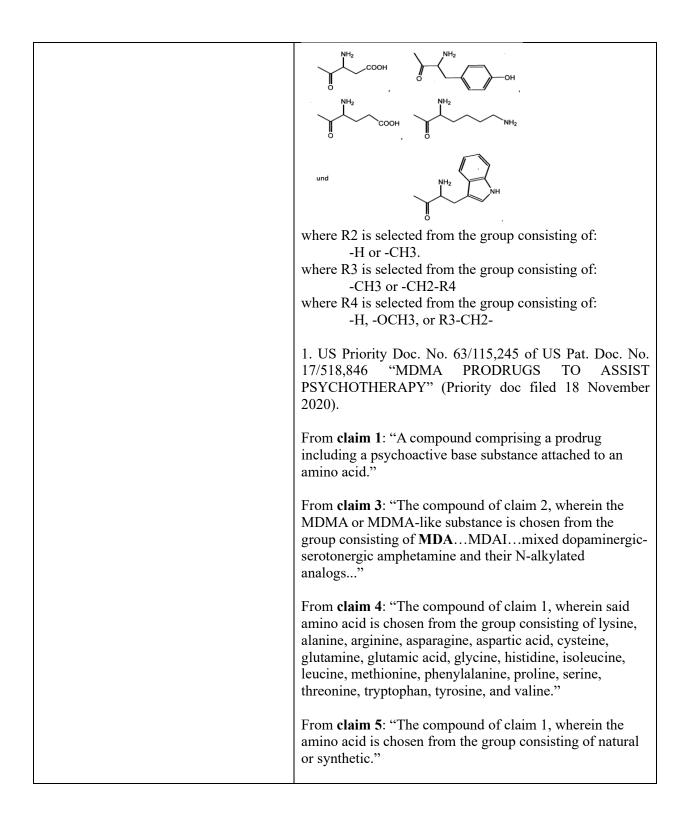


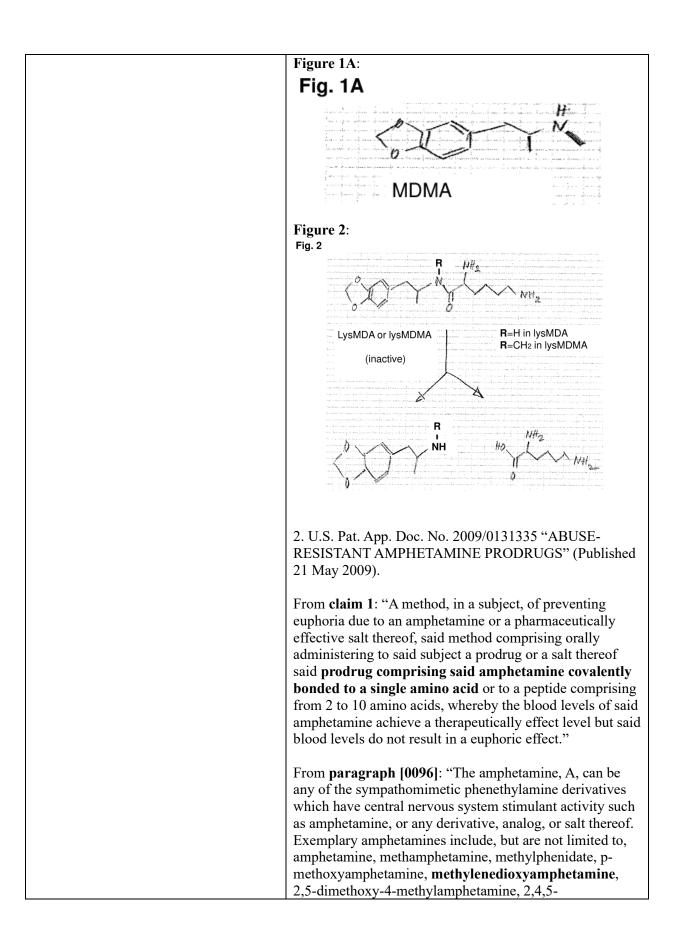


derivatives which have central nervous system
stimulant activity such as amphetamine, or any
derivative, analog, or salt thereof. Exemplary
amphetamines include, but are not limited to,
amphetamine, methamphetamine, methylphenidate, p-
methoxyamphetamine, methylenedioxyamphetamine,
2,5-dimethoxy-4-methylamphetamine, 2,4,5-
trimethoxyamphetamine, and 3,4-
methylenedioxymethamphetamine"
From paragraph [0107]: "Each amino acid can be any
one of the L- or D-enantiomers, preferably L-enantiomers,
of the naturally occurring amino acids: alanine (Ala or A),
arginine (Arg or R), asparagine (Asn or N), aspartic acid
(Asp or D), cysteine (Cys or C), glycine (Gly or G),
glutamic acid (Glu or E), glutamine (Gln or Q), histidine
(His or H), isoleucine (Ile or I), leucine (Leu or L), lysine
(Lys or K), methionine (Met or M), proline (Pro or P),
phenylalanine (Phe or F), serine (Ser or S), tryptophan
(Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and
valine (Val or V)"
3. MAZUR (1970) "Structure-taste relation of aspartic acid
amides" J. Med. Chem. Vol 13(6): 1217-1221.

 Tab	le 2 (entry 64):					
	,		ars II			
No.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula	Taste
50 51	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; L- HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; D-	88 AC 98 AC	197–198 W 222–225 E. W	- 12 M + 14 W	$C_{13}H_{15}N_2O_3$ $C_{13}H_{16}N_2O_3$	50 0
52 53	HNCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+ 34 M - 15 W	$C_{14}H_{20}N_4O_3$ $C_{12}H_{16}N_4O_3$	-
54 55	$HNCH(C_2H_3)CH_2C_6H_3$ $HNC(CH_3)_2CH_2C_6H_3$	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{26}N_2O_3 + 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_3$	5 20
56		91 M	223-224 M-W	-6 II	$C_{11}H_{16}N_2O_2$	10
	CH:			0.11	< 111111-120-1	
57 58	HNCHCHC <sub>6</sub> H <sub>3</sub> ; t- HNCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H,	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{18}N_2O_8 \cdot H_2O$ $C_{12}H_{18}N_2O_4$	
59 60	N(CH <sub>2</sub> )CH(CH <sub>8</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; 1	84 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$	
61	$N(CH_3)CH(CH_3)CH_2C_6H_3$ ; D- HNCH(CH_3)CH_2CH_2C_6H_3	82 M 95 AC	190-196 MW	+16 H	$C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_3$	5
62 63	HNCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub> HNCH <sub>2</sub> CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub>	68 M 85 AC	180~184 M=W 184-185 W	+11 H -13 H	C <sub>12</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> C <sub>12</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	10 +
64 65	$HNCH(CH_3)CH_2C_4H_3(OCH_2O)-3_14$ $HNCH(CH_2OH)CH_2C_4H_5;$ 1	95 M 95 AC	189–192 237–238 W	+6 M -26 AC	$C_{14}H_{18}N_2O_5$ $C_{13}H_{18}N_2O_4$	
66 67	HNCH(CH <sub>3</sub> )CH(OH)C <sub>8</sub> H; HNCH(CH <sub>3</sub> )CH <sub>7</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{11}H_1 N_2O_4 \cdot 0.5 H_2O_1 C_{10}H_1 N_2O_4$	+
68 69	HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> OH-4 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>8</sub> H <sub>4</sub> OH-4; 1	72 AC 44 M	209~210 W 212~213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{18}H_{18}N_2O_4$	+
70	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1	96 M	199-208 W	+14.11	$C_{14}H_{21}N_8O_5S$	
71 72	$HNCH(CH_3)CH_2C_6H_4F-4$ $HNCH_2CH_2C_4H_4F-4$	87 M 74 M	203-209 M-ET 208-209 W	+9 H −6 M	$C_{12}H_{17}FN_2O_3$ $C_{12}H_{15}FN_2O_3$	20 5
73	HNCH(CH.)CH2	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_2O_4{\cdot}0.333H_2O$	10
74	HNCH,CH, L	71 M	195-196 M	- 17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	+
75	HNCH/CH_/CH_	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	HNCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$\mathrm{C}_{13}\mathrm{H}_{13}\mathrm{N}_{2}\mathrm{O}_{3}$	50
77 78	$HNCH(CH_0)CH_{2*}c_*C_6H_{11}; D=$ $HNCH_2CH_{2*}c_*C_8H_{11}$	60 M 94 AC	207-208 M-W 193-202 M-W	$^{+16}_{+7}$ M +7 AC	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79 80	$N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1 $N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	CuH28N2O1+0.25H2O CuH28N2O2	
81 82	HN-e-C <sub>6</sub> H <sub>11</sub> HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224–225 W 190–194 A W	+16 H +9 AC	$C_{10}H_{18}N_2O_3$ $C_5H_{18}N_2O_4 \cdot 0.5H_2O$	 0
83	HN(CH <sub>2</sub> ) <sub>3</sub> CH(CH <sub>4</sub> )CH <sub>3</sub>	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85	$HNCH(CH_3)CH_2CH(CH_3)CH_3; 1_{*}$ $HNCH(CH_3)CH_2CH(CH_3)CH_3; 0_{*}$	91 AC 92 AC	166–168 W 201–202 W	−17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	
86 87	$HNCH(C_2H_3)CH_2CH_2CH_3$ $HN(CH_2)_3CH_3$	93 M 88 M	196-200 AW 200-201 W	+12 AC +9 AC	C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , 0, 25H <sub>2</sub> O	
88 89	HNCH(CH <sub>4</sub> ) <sub>4</sub> CH <sub>4</sub> HN(CH <sub>4</sub> ) <sub>6</sub> CH <sub>4</sub>	98 M 89 M	188 -193 A -W 200-201 W	+11 AC +8 AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.25H_2O$	30 +
90 91	HNCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	95 M	190~194	$\pm 7$ AC	$C_{11}H_{22}N_2O_3$	20 +
92	$HNCH(CH_3)CH_2CH(CH_3)CH_2CH_2$ $HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3$	94 M 94 M	162–166 W 184–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	50
93 94	$HNCH(C_2H_5)(CH_2)_3CH_3$ $HNCH(CH_3)(CH_2)_4CH_3;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_{11}H_{22}N_2O_3 \cdot 0$ , 5H <sub>2</sub> O $C_{12}H_{22}N_2O_3$ , H <sub>2</sub> O	4: 50
95 96	$HNCH(CH_3)(CH_2)_4CH_3; L^d$ $HNCH(CH_3)(CH_2)_4CH_3; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 + 05H_2O_3$ $C_{11}H_{22}N_2O_3$	
97 98	$HNCH(CH_3)(CH_2)_4CH_3; D^d$ $HNCH(CH_2)CH_2CH_2CH(CH_2)CH_3; L-$	97 M 84 M	189–192 W 187–190 W	$^{+6}_{+23}$ H	$C_{15}H_{22}N_2O_3$ $C_{13}H_{22}N_2O_3 + 0.5H_2O$	100
99 100	$HNCH(CH_8)CH_2CH_2CH(CH_8)CH_8; \ L^d$	99 M	215-216 M-W	+2 M -3 M	$C_1$ ; $H_2$ ; $N_2$ O <sub>3</sub>	0
101	$HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D-HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	-26 H	$C_{11}H_{12}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{12}N_2O_3 \cdot 0.25H_2O$	+
102 103	HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> HNCH(CH <sub>2</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	77 M 85 M	166-170 M-ET 180-190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_2O \\ C_{12}H_{21}N_2O_3 \cdot 0.5H_2O$	10 10
<sup>4</sup> See T <sup>4</sup> The ami	able I for abbreviations and explanations. de was derived from p-Asp. * All compound	<sup>b</sup> The amies were analy	de was derived from zed for C, H, N.	i t-Glu. ≃Tl	he amide was deri <b>ve</b> d from	ntsAsp.
plac	atch (2016) "Locor e conditioning effer macology, Vol 27 (	cts of	f MDAI i		,	
(ME meth <b>MD</b> stim psyc teste subs train intra	n abstract: "5,6-M DAI) has become a nylenedioxymethan AI is known to pro- nulus effects, but it chostimulant or hall ad for locomotor sti equently for discri- need to discriminate aperitoneally), meth- presitoneally, +MI	comr nphet oduc is no lucino mula ninat cocai	non subs tamine (M e MDMA t known ogen-like nt effects tive stimu ne (10 m hetamine	titute MDM <b>A-like</b> wheth e effec s in m alus e ag/kg, e (1 mg	for (±)-3,4- A) in Ecstas e <b>discrimina</b> her MDAI h ets. MDAI w ice and ffects in rats g/kg,	as 7as
	peritoneally), ±MI -)-2,5-dimethoxy-4		· –	-	-	• /

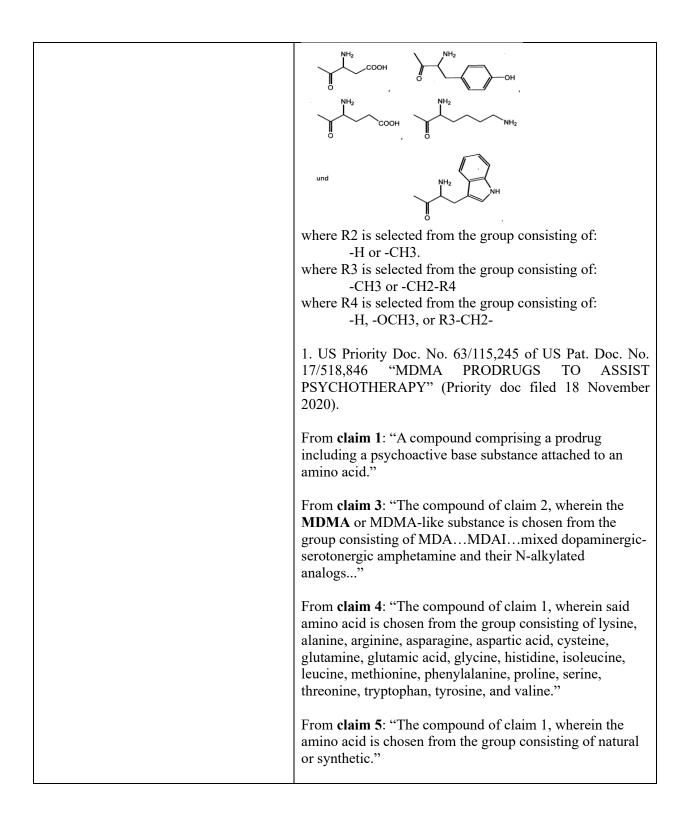
	<ul> <li>(0.5 mg/kg, intraperitoneally) from salineMDAI fully substituted for the discriminative stimulus effects of MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4-methylamphetamine hydrochloride (5 mg/kg), and cocaine (7.5 mg/kg), but produced only 73% methamphetamine-appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity and drug discrimination were similar to those produced by MDMA, having both psychostimulant-like and hallucinogen-like effects; thus, MDAI may have similar abuse potential as MDMA.</li> <li>5. Nichols (1986) "Synthesis and Evaluation of 2,3-Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5-Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304.</li> <li>From page 304, paragraph 2: "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5-</li> </ul>
	(methylenedioxy)amphetamine (8; MMDA-2) is active H <sub>3</sub> C NH <sub>2</sub> O CH <sub>3</sub>
	<b>8</b>
	and produces clear central effects at an oral dosage of 25 mg of the hydrochloride"
2. The compound of claim 1, wherein $R_2$ is -H, $R_3$ is -CH <sub>3</sub> , and $R_4$ is -H.	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020):
	From <b>claim 1</b> : "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I:
	Control R <sub>3</sub> (Formel I)
	where R1 is selected from the group consisting of:

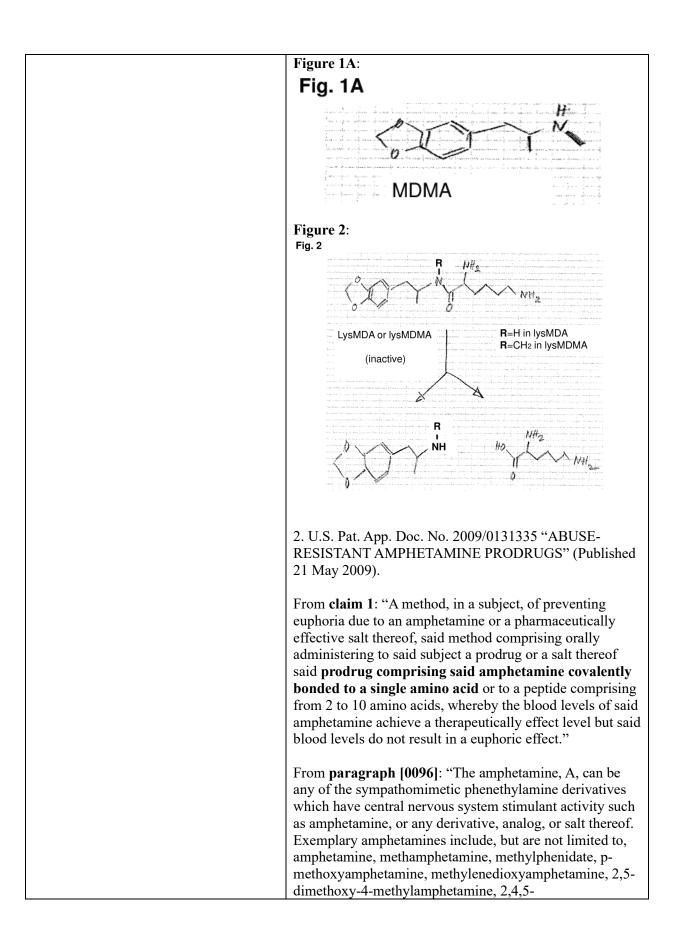




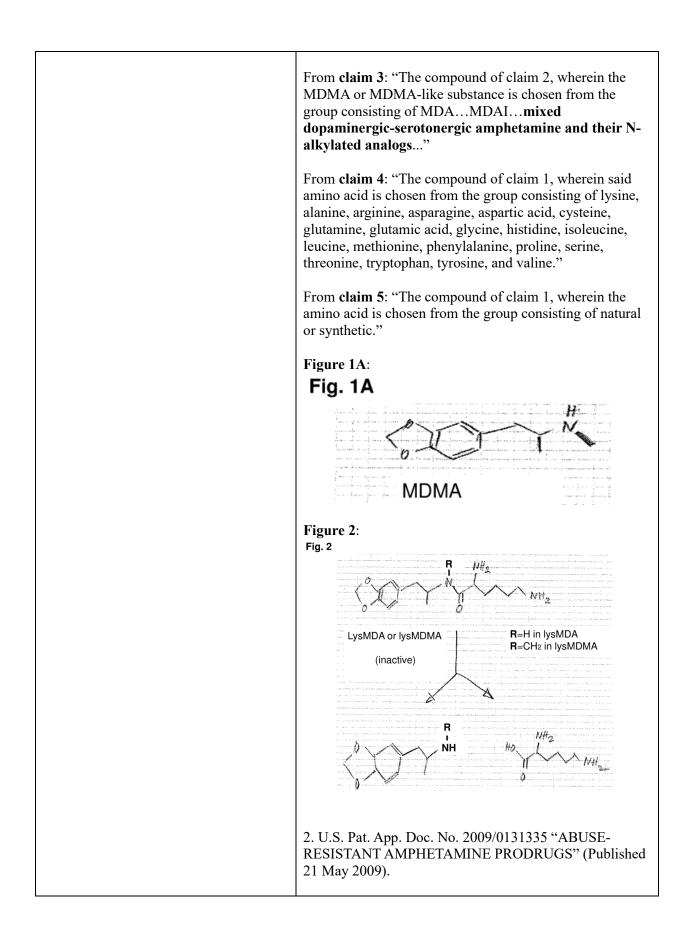
trimethoxyamphetamine, and <b>3,4</b> - methylenedioxymethamphetamine"
<ul> <li>From paragraph [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), aspartic acid (Asp or D), cysteine (Cys or C), glycine (Gly or G), glutamic acid (Glu or E), glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and valine (Val or V)"</li> <li>MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.</li> </ul>

	Table 2 (entry 64):				
	,	TABLE II Aspartic Acid Amides			
	No.         X           50         HNCH(CH <sub>3</sub> )CH <sub>4</sub> CH; t-           51         HNCH(CH <sub>6</sub> )CH; CH;           52         HNCH(CH <sub>6</sub> )CH; CH;           53         HNCH(CH <sub>6</sub> )CH;           54         HNCH(CH <sub>6</sub> )CH;           55         HNCH(CH <sub>6</sub> )CH;           56         HNCH(CH <sub>6</sub> )CH;           56         HNCH(CH <sub>6</sub> )CH;	Asp-Sx <sup>+</sup> Yish, (r)         Mp, (r)           88 AC         197–198 W           98 AC         222-225 E W           79 M         164–166 A W           70 AC         212-224 H P-W           91 AC         158–163 M.ET           96 AC         158–163 M.ET           96 AC         159–164 W           91 M         223–224 M.W	$ \begin{array}{llllllllllllllllllllllllllllllllllll$		
	CH; 57 HNCHCHAE,H; t- 58 HNCHCH(CH <sub>4</sub> )C,H; 59 N(CH <sub>2</sub> )CH(CH <sub>4</sub> )CH,CH; 50 N(CH <sub>2</sub> )CH(CH <sub>4</sub> )CH,CH; 61 HNCH(CH <sub>2</sub> )CH,CH; 62 HNCH(CH <sub>4</sub> )CH,CH; 62 HNCH(CH <sub>4</sub> )CH,OC,H; 64 HNCH(CH <sub>4</sub> )CH; 64 HNCH(CH <sub>4</sub> )CH; 65 HNCH(CH <sub>4</sub> )CH; 66 HNCH(CH <sub>4</sub> )CH; 67 HNCH(CH <sub>4</sub> )	95 M 175-178 70 AC 182-188 W 84 M 164-166 82 M 185-187 95 AC 190-196 M W 85 AC 184 M W 85 AC 184 HS W 95 M 180-192	+5 M CuHuSA0, H <sub>4</sub> O $-$ -20 W CuHuSA0, H <sub>4</sub> O $-$ +47 W CuHuSA0, 0.5H <sub>4</sub> O $-$ +12 W CuHuSA0, 0.5H <sub>4</sub> O $-$ +16 H CuHuSA0, 0.5H <sub>4</sub> O $-$ +11 H CuHuSA0, 10 -15 H CuHuSA0, $+$ +6 M CuHuSA0, $-$		
	65         HNCH/CH <sub>2</sub> OH/CH <sub>2</sub> CH:: 1-           66         HNCH(CH <sub>2</sub> )CH(OH/CH).           67         HNCH(CH <sub>2</sub> )CH(CH).           68         HNCHCH,CH,OH-CH).           69         HNCHCH,CH,OH-GH,CH).           60         HNCHCH,CH,OH-GH,CH).           70         HNCHCH,CH,CH,CH,OH-H).           71         HNCH(CH).           72         HNCHCH,CH,CH,F+4           73         HNCHCH,CH,F-4	95 AC 237 238 W 98 M 188-490 M 95 M 160-485 72 AC 209-210 W 44 M 212-213 M	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		
	74 HNCH,CH,	71 M 195~196 M	$-17~\mathrm{M} \qquad \mathrm{C_{10}H_{11}N_2O_1} \qquad +$		
	<sup>4</sup> The amide was derived from n-Asp. <sup>4</sup> All compo	φ <sup>4</sup> 90 M 215-216 M−W 96 M 210-213 M−W 96 01 M 102-193 W− 77 M 106-170 M−ET 85 M 180-190 as. <sup>16</sup> The amide was derived fro and were analyzed for C, H, N.	$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
3. The compound of claim 1, wherein R <sub>2</sub> is -CH <sub>3</sub> , R <sub>3</sub> is -CH <sub>3</sub> , and R <sub>4</sub> is -H.	<ul> <li>From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020):</li> <li>From claim 1: "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I:</li> </ul>				
	$ \begin{array}{c}                                     $				
	where R1 is selected	from the group	consisting of:		





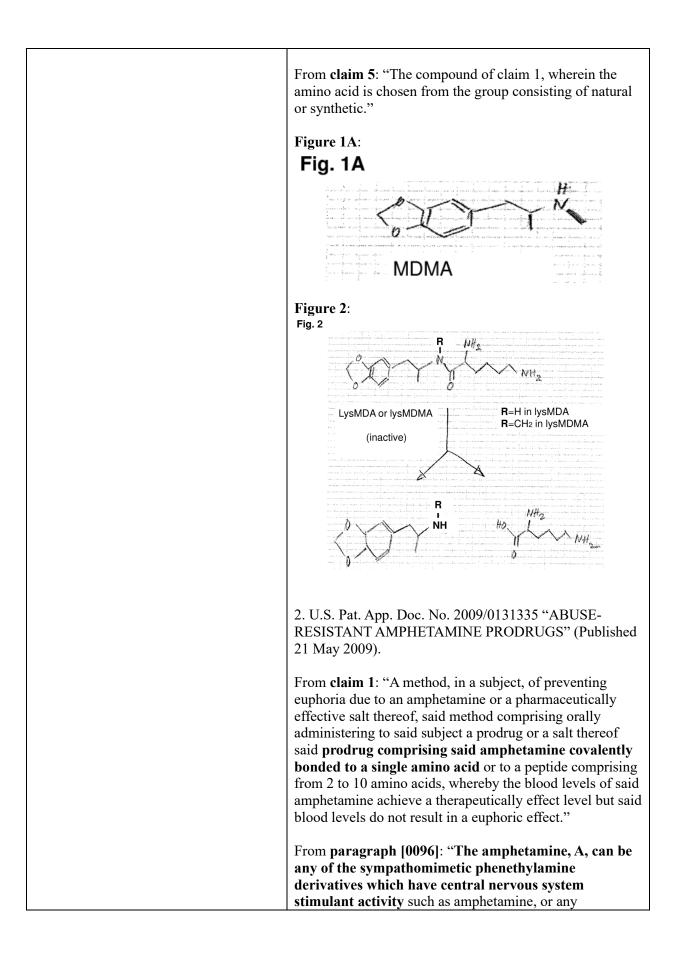
	trimethoxyamphetamine, and <b>3,4</b> -
	methylenedioxymethamphetamine"
	From <b>paragraph</b> [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), <b>aspartic acid</b> (Asn or D), averagine (Cus or C), alwaine (Clu or C)
	(Asp or D), cysteine (Cys or C), glycine (Gly or G), glutamic acid (Glu or E), glutamine (Gln or Q), histidine
	(His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and value (Value V)"
	valine (Val or V)"
4. The compound of claim 1, wherein R <sub>2</sub> is -H, R <sub>3</sub> is -CH <sub>3</sub> , and R <sub>4</sub> is -OCH <sub>3</sub> .	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020):
	From <b>claim 1</b> : "1. 3,4-methylenedioxy-amphetamine
	peptide according to general formula I:
	R <sub>2</sub>
	where R1 is selected from the group consisting of:
	$\begin{array}{c} \begin{array}{c} & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & $
	und NH <sub>2</sub> NH
	where R2 is selected from the group consisting of: -H or -CH3.
	where R3 is selected from the group consisting of: -CH3 or -CH2-R4
	where R4 is selected from the group consisting of: -H, -OCH3, or R3-CH2-
	1. US Priority Doc. No. 63/115,245 of US Pat. Doc. No. 17/518,846 "MDMA PRODRUGS TO ASSIST PSYCHOTHERAPY" (Priority doc filed 18 November 2020).
	From <b>claim 1</b> : "A compound comprising a prodrug including a psychoactive base substance attached to an amino acid."



From <b>claim 1</b> : "A method, in a subject, of preventing euphoria due to an amphetamine or a pharmaceutically effective salt thereof, said method comprising orally administering to said subject a prodrug or a salt thereof said <b>prodrug comprising said amphetamine covalently</b> <b>bonded to a single amino acid</b> or to a peptide comprising from 2 to 10 amino acids, whereby the blood levels of said amphetamine achieve a therapeutically effect level but said blood levels do not result in a euphoric effect."
From paragraph [0096]: "The amphetamine, A, can be any of the sympathomimetic phenethylamine derivatives which have central nervous system stimulant activity such as amphetamine, or any derivative, analog, or salt thereof. Exemplary amphetamines include, but are not limited to, amphetamine, methamphetamine, methylphenidate, p- methoxyamphetamine, methylenedioxyamphetamine, 2,5- dimethoxy-4-methylamphetamine, 2,4,5- trimethoxyamphetamine, and 3,4- methylenedioxymethamphetamine"
From <b>paragraph</b> [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), <b>aspartic acid</b> (Asp or D), cysteine (Cys or C), glycine (Gly or G), <b>glutamic acid</b> (Glu or E), glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and valine (Val or V)"
3. MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.

Table 2 (antana (4))				
Table 2 (entry 64):	TABLE II			
V	Aspartic Acid Amides Asp-X"	the Provider Prove		
No.         X           50         HNCH(CH <sub>3</sub> )CH <sub>4</sub> CdL:           51         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:           52         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:           53         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:           54         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:           55         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:           56         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:           61         HNCH(CH <sub>4</sub> )CH <sub>4</sub> CdL:	Vield, '7         Mp, '7'           88 AC         197–198 W           98 AC         222–225 E W           70 M         164–166 A W           70 AC         212–214 P-W           91 AC         158–163 M-ET           96 AC         159–161 W           91 M         223-224 M-W	$\label{eq:asymptotic state} \begin{split} & [a]_0  deg & Formula' & Taste \\ & -12  M & C_{11} H_{3} N_i O_i & 50 \\ & +14  W & C_{14} H_{3} N_i O_i & 0 \\ & +34  M & C_{14} H_{3} N_i O_i & 0 \\ & -15  W & C_{12} H_{3} N_i O_i & 0 \\ & +8  M & C_{11} H_{3} N_i O_i & 0 \\ & +8  M & C_{11} H_{3} N_i O_i & 0 \\ & -6  H & C_{11} H_{3} N_i O_i & 20 \\ & -6  H & C_{11} H_{3} N_i O_i & 10 \\ \end{split}$		
<ol> <li>HNCHCHC<sub>4</sub>H.; t-</li> <li>HNCH<sub>4</sub>CH(CH<sub>4</sub>)C<sub>4</sub>H.</li> <li>N(CH<sub>2</sub>)CH(CH<sub>3</sub>)C<sub>4</sub>C<sub>4</sub>H.</li> <li>N(CH<sub>2</sub>)CH(CH<sub>3</sub>)CH<sub>4</sub>C<sub>4</sub>H.; t-</li> <li>N(CH<sub>4</sub>)CH(CH<sub>5</sub>)CH<sub>4</sub>C<sub>4</sub>H.; p-</li> <li>HNCH(CH<sub>3</sub>)CH<sub>4</sub>C<sub>4</sub>H.</li> <li>HNCH(CH<sub>3</sub>)CH<sub>4</sub>C<sub>4</sub>H.</li> <li>HNCH(CH<sub>4</sub>)CH<sub>4</sub>C<sub>4</sub>H.</li> <li>HNCH(CH<sub>4</sub>)CH<sub>4</sub>C<sub>4</sub>H.</li> <li>HNCH(CH<sub>4</sub>)CH<sub>4</sub>C<sub>4</sub>H.</li> </ol>	95 M         175-178           70 AC         182-188 W           84 M         164-166           82 M         185-187           95 AC         190-196 MW           68 M         180-184 M W           85 AC         190-196 MW           68 M         180-184 M W           85 AC         190-196 MW           69 M         189-192	$\begin{array}{ccccc} +5 & M & C_{11}H_{18}N_{3}Q_{5}(H_{4}O) & -\\ -20 & W & C_{12}H_{28}N_{3}Q_{5} & -\\ +47 & W & C_{13}H_{28}N_{3}Q_{5}(0,5)H_{4}O & -\\ +12 & W & C_{14}H_{28}N_{3}Q_{5}(0,5)H_{4}O & -\\ +16 & H & C_{14}H_{48}N_{4}O_{5} & 5\\ +11 & H & C_{16}H_{18}N_{4}O_{5} & +\\ -15 & H & C_{16}H_{48}N_{4}O_{5} & +\\ +6 & M & C_{16}H_{58}N_{4}O_{5} & -\\ \end{array}$		
65 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> CH <sub>2</sub> . L <sub>2</sub> 66 HNCH(CH <sub>2</sub> OHOH)C <sub>3</sub> L, 67 HNCH(CH <sub>2</sub> OHOH)C <sub>3</sub> L, 68 HNCH(CH <sub>4</sub> OH)CH <sub>2</sub> CH <sub>4</sub> OH <sub>4</sub> 68 HNCH(CH <sub>4</sub> OH)CH <sub>2</sub> CH <sub>4</sub> OH <sub>4</sub> +1. 70 HNCH(CH <sub>6</sub> OH)CH <sub>2</sub> CH <sub>4</sub> OH <sub>4</sub> OH <sub>4</sub> +1. 71 HNCH(CH <sub>2</sub> OH)CH <sub>4</sub> CH <sub>4</sub> OH <sub>5</sub> OH <sub>4</sub> +1. 72 HNCH <sub>4</sub> CH <sub>4</sub> CH <sub>4</sub> OH <sub>5</sub>	95 AC         237 228 W           98 M         188 190 M           95 M         160 185           72 AC         269 210 W           44 M         212 213 M           96 M         199 208 W           87 M         208 200 M-ET           74 M         208 200 W           85 M         168 480 M-ET           85 M         168 480 M-ET	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		
74 HNCH,CH,	71 M 195–196 M	$= 17~M \qquad C_{10}H_{11}N_2O_1 \qquad \qquad + \qquad \qquad$		
$\begin{array}{cccc} & & & & & \\ \hline & & & & \\ \hline & & & & \\ \hline & & & &$		$\begin{array}{cccccccccccccccccccccccccccccccccccc$		
5. Nichols (1986) "Synthesis and Evaluation of 2,3- Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5- Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304.				
From <b>page 304</b> , <b>parag</b> difficult to explain in li (methylenedioxy)amph	ght of the fac	t that 2-methoxy-4,5- MDA-2) is active		
	B OCH	3		
and produces clear cen mg of the hydrochlorid		an oral dosage of 25		

5. The compound of claim 1, wherein $R_2$ is -H, and where $R_3$ and $R_4$ are mutually joined to form a group -CH <sub>2</sub>	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020):				
	From <b>claim 1</b> : "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I:				
	where R1 is selected from the group consisting of:				
	und NH <sub>2</sub> NH				
	where R2 is selected from the group consisting of:				
	-H or -CH3. where R3 is selected from the group consisting of:				
	-CH3 or -CH2-R4 where R4 is selected from the group consisting of: -H, -OCH3, or R3-CH2-				
	1. US Priority Doc. No. 63/115,245 of US Pat. Doc. No. 17/518,846 "MDMA PRODRUGS TO ASSIST PSYCHOTHERAPY" (Priority doc filed 18 November 2020).				
	From <b>claim 1</b> : "A compound comprising a prodrug including a psychoactive base substance attached to an amino acid."				
	From <b>claim 3</b> : "The compound of claim 2, wherein the MDMA or MDMA-like substance is chosen from the group consisting of MDA <b>MDAI</b> mixed dopaminergic-serotonergic amphetamine and their N-alkylated analogs"				
	From <b>claim 4</b> : "The compound of claim 1, wherein said amino acid is chosen from the group consisting of lysine, alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine, leucine, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, and valine."				



derivative, analog, or salt thereof. Exemplary amphetamines include, but are not limited to, amphetamine, methamphetamine, methylphenidate, p- methoxyamphetamine, methylenedioxyamphetamine, 2,5- dimethoxy-4-methylamphetamine, 2,4,5- trimethoxyamphetamine, and 3,4- methylenedioxymethamphetamine"
<ul> <li>From paragraph [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), aspartic acid (Asp or D), cysteine (Cys or C), glycine (Gly or G), glutamic acid (Glu or E), glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and valine (Val or V)"</li> <li>MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.</li> </ul>

 Tab	le 2 (entry 64):					
	,		ars II			
No.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula	Taste
50 51	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; L- HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; D-	88 AC 98 AC	197–198 W 222–225 E. W	- 12 M + 14 W	$C_{13}H_{15}N_2O_3$ $C_{13}H_{16}N_2O_3$	50 0
52 53	HNCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+ 34 M - 15 W	$C_{14}H_{20}N_4O_3$ $C_{12}H_{16}N_4O_3$	-
54 55	$HNCH(C_2H_3)CH_2C_6H_3$ $HNC(CH_3)_2CH_2C_6H_3$	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{26}N_2O_3 + 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_3$	5 20
56		91 M	223-224 M-W	-6 II	$C_{11}H_{16}N_2O_2$	10
	CH:			0.11	< 111111-120-1	
57 58	HNCHCHC <sub>6</sub> H <sub>3</sub> ; t- HNCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H,	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{18}N_2O_8 \cdot H_2O$ $C_{12}H_{18}N_2O_4$	
59 60	N(CH <sub>2</sub> )CH(CH <sub>8</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; 1	84 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$	
61	$N(CH_3)CH(CH_3)CH_2C_6H_3$ ; D- HNCH(CH_3)CH_2CH_2C_6H_3	82 M 95 AC	190-196 MW	+16 H	$C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_3$	5
62 63	HNCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub> HNCH <sub>2</sub> CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub>	68 M 85 AC	180~184 M=W 184-185 W	+11 H -13 H	C <sub>12</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> C <sub>12</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	10 +
64 65	$HNCH(CH_3)CH_2C_4H_3(OCH_2O)-3_74$ $HNCH(CH_2OH)CH_2C_4H_5;$ 1	95 M 95 AC	189–192 237–238 W	+6 M -26 AC	$C_{14}H_{18}N_2O_5$ $C_{13}H_{18}N_2O_4$	
66 67	HNCH(CH <sub>3</sub> )CH(OH)C <sub>8</sub> H; HNCH(CH <sub>3</sub> )CH <sub>7</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{11}H_1 N_2 O_4 \cdot 0.5 H_2 O_1 C_{10}H_1 N_2 O_4$	+
68 69	HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> OH-4 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>8</sub> H <sub>4</sub> OH-4; 1	72 AC 44 M	209~210 W 212~213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{18}H_{18}N_2O_4$	+
70	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1	96 M	199-208 W	+14.11	$C_{14}H_{41}N_8O_5S$	
71 72	$HNCH(CH_3)CH_2C_6H_4F-4$ $HNCH_2CH_2C_4H_4F-4$	87 M 74 M	203-209 M-ET 208-209 W	+9 H −6 M	$C_{12}H_{17}FN_2O_3$ $C_{12}H_{15}FN_2O_3$	20 5
73	HNCH(CH.)CH2	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_2O_4{\cdot}0.333H_2O$	10
74	HNCH,CH, L	71 M	195-196 M	- 17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	+
75	HNCH/CH_/CH_	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	HNCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$C_{13}H_{13}N_2O_3$	50
77 78	$HNCH(CH_0)CH_{2*}c_*C_6H_{11}; D=$ $HNCH_2CH_{2*}c_*C_8H_{11}$	60 M 94 AC	207-208 M-W 193-202 M-W	$^{+16}_{+7}$ M +7 AC	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79 80	$N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1 $N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	CuH28N2O1+0.25H2O CuH28N2O2	
81 82	HN-e-C <sub>6</sub> H <sub>11</sub> HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224–225 W 190–194 A W	+16 H +9 AC	$C_{10}H_{18}N_2O_3$ $C_5H_{18}N_2O_4 \cdot 0.5H_2O$	 0
83	HN(CH <sub>2</sub> ) <sub>3</sub> CH(CH <sub>4</sub> )CH <sub>3</sub>	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85	$HNCH(CH_3)CH_2CH(CH_3)CH_3; 1_{*}$ $HNCH(CH_3)CH_2CH(CH_3)CH_3; 0_{*}$	91 AC 92 AC	166–168 W 201–202 W	−17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	
86 87	$HNCH(C_2H_3)CH_2CH_2CH_3$ $HN(CH_2)_3CH_3$	93 M 88 M	196-200 AW 200-201 W	+12 AC +9 AC	C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , 0, 25H <sub>2</sub> O	
88 89	HNCH(CH <sub>4</sub> ) <sub>4</sub> CH <sub>4</sub> HN(CH <sub>4</sub> ) <sub>6</sub> CH <sub>4</sub>	98 M 89 M	188 -193 A -W 200-201 W	+11 AC +8 AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.25H_2O$	30 +
90 91	HNCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	95 M	190~194	$\pm 7$ AC	$C_{11}H_{22}N_2O_3$	20 +
92	$HNCH(CH_3)CH_2CH(CH_3)CH_2CH_2$ $HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3$	94 M 94 M	162–166 W 184–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	50
93 94	$HNCH(C_2H_5)(CH_2)_3CH_3$ $HNCH(CH_3)(CH_2)_4CH_3;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_{11}H_{22}N_2O_3 \cdot 0$ , 5H <sub>2</sub> O $C_{12}H_{22}N_2O_3$ , H <sub>2</sub> O	4: 50
95 96	$HNCH(CH_3)(CH_2)_4CH_3; L^d$ $HNCH(CH_3)(CH_2)_4CH_3; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 + 05H_2O_3$ $C_{11}H_{22}N_2O_3$	
97 98	$HNCH(CH_3)(CH_2)_4CH_3; D^d$ $HNCH(CH_2)CH_2CH_2CH(CH_2)CH_3; L-$	97 M 84 M	189–192 W 187–190 W	$^{+6}_{+23}$ H	$C_{15}H_{22}N_2O_3$ $C_{13}H_{22}N_2O_3 + 0.5H_2O$	100
99 100	$HNCH(CH_8)CH_2CH_2CH(CH_8)CH_8; \ L^d$	99 M	215-216 M-W	+2 M -3 M	$C_1$ ; $H_2$ ; $N_2$ O <sub>3</sub>	0
101	$HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D-HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	-26 H	$C_{11}H_{12}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{12}N_2O_3 \cdot 0.25H_2O$	+
102 103	HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> HNCH(CH <sub>2</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	77 M 85 M	166-170 M-ET 180-190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_2O \\ C_{12}H_{21}N_2O_3 \cdot 0.5H_2O$	10 10
<sup>4</sup> See T <sup>4</sup> The ami	able I for abbreviations and explanations. de was derived from p-Asp. * All compound	<sup>b</sup> The amies were analy	de was derived from zed for C, H, N.	i t-Glu. ≃Tl	he amide was deri <b>ve</b> d from	ntsAsp.
plac	atch (2016) "Locor e conditioning effer macology, Vol 27 (	cts of	f MDAI i		,	
(ME meth <b>MD</b> stim psyc teste subs train intra	n abstract: "5,6-M DAI) has become a nylenedioxymethan AI is known to pro- nulus effects, but it chostimulant or hall ad for locomotor sti equently for discrim- ted to discriminate aperitoneally), meth- presitoneally, +MI	comr nphet oduc is no lucino mula ninat cocai	non subs tamine (M e MDMA t known ogen-like nt effects tive stimu ne (10 m hetamine	titute MDM <b>A-like</b> wheth e effec s in m alus e ag/kg, e (1 mg	for (±)-3,4- A) in Ecstas e <b>discrimina</b> her MDAI h ets. MDAI w ice and ffects in rats g/kg,	as 7as
	peritoneally), ±MI -)-2,5-dimethoxy-4		· –	-	-	• /

	(0.5 mg/kg, intraperitoneally) from salineMDAI fully substituted for the discriminative stimulus effects of MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine (7.5 mg/kg), but produced only 73% methamphetamine- appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. <b>The effects of MDAI on locomotor activity and drug discrimination were similar to those</b> <b>produced by MDMA, having both psychostimulant-like and hallucinogen-like effects</b> ; thus, MDAI may have similar abuse potential as MDMA.
6. The compound of claim 1, wherein R <sub>1</sub> is selected from: 4 - 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 +	<ul> <li>2. U.S. Pat. App. Doc. No. 2009/0131335 "ABUSE- RESISTANT AMPHETAMINE PRODRUGS" (Published 21 May 2009).</li> <li>From claim 1: "A method, in a subject, of preventing euphoria due to an amphetamine or a pharmaceutically effective salt thereof, said method comprising orally administering to said subject a prodrug or a salt thereof</li> </ul>
	said <b>prodrug comprising said amphetamine covalently</b> <b>bonded to a single amino acid</b> or to a peptide comprising from 2 to 10 amino acids, whereby the blood levels of said amphetamine achieve a therapeutically effect level but said blood levels do not result in a euphoric effect." From <b>paragraph [0096]</b> : "The amphetamine, A, can be
	any of the sympathomimetic phenethylamine derivatives which have central nervous system stimulant activity such as amphetamine, or any derivative, analog, or salt thereof. Exemplary amphetamines include, but are not limited to, amphetamine, methamphetamine, methylphenidate, p- methoxyamphetamine, <b>methylenedioxyamphetamine</b> , 2,5-dimethoxy-4-methylamphetamine, 2,4,5- trimethoxyamphetamine, and <b>3,4-</b> <b>methylenedioxymethamphetamine</b> "
	From <b>paragraph</b> [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), <b>aspartic acid</b> (Asp or D), cysteine (Cys or C), glycine (Gly or G), <b>glutamic acid (Glu or E)</b> , glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), <b>lysine</b> (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), <b>tryptophan</b> ( <b>Trp or W</b> ), threonine (Thr or T), <b>tyrosine (Tyr or Y)</b> , and valine (Val or V)"

3. MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.

## Table 2 (entry 64):

$\begin{array}{c} \text{CHCdH}_{1:} \ \text{tr} \\ \text{CHCdH}_{2:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{tr} \\ \text{CdH}_{3:} \ \text{CHCdH}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{CHC}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{CH}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{CH}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{tr} \\ \text{R_{1}CdH}_{3:} \ \text{tr} \\ \text{CH}_{2:} \ \text{CdH}_{3:} \ \text{tr} \\ \text{CH}_{2:} \ \text{CdH}_{3:} \ \text{tr} \\ \text{CdH}_{3:} \ \text{CdH}_{$	88 AC 98 AC 98 AC 97 M 70 M 90 AC 91 AC 91 M 95 M 90 AC 91 M 95 M 95 M 95 M 95 M 95 M 95 M 95 M 98 M	197–198. W 197–198. W 222–225. F. W 164–166 A. W 212–214 PW 153–163. M. ET 150–164. W 223–224. M. W 175–178 182–188. W 164–166 183–187 180–196. MW 184–185. W 184–185. W 199–208. W 203–209. M. ET 203–209. M. ET 195–196. M	$\begin{array}{c} -12 \ \mathrm{M} \\ +14 \ \mathrm{W} \\ +34 \ \mathrm{M} \\ -15 \ \mathrm{M} \\ +8 \ \mathrm{M} \\ -16 \ \mathrm{M} \\ -16 \ \mathrm{M} \\ -6 \ \mathrm{H} \\ -6 \ \mathrm{H} \\ +5 \ \mathrm{M} \\ +10 \ \mathrm{M} \\ +10 \ \mathrm{H} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{M} \\ +20 \ \mathrm{W} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{M} \\ -26 \ \mathrm{M} \\ +10 \ \mathrm{M} \\ +10 \ \mathrm{H} \\ -11 \ \mathrm{M} \\ +6 \ \mathrm{M} \\ +6 \ \mathrm{H} \\ -17 \ \mathrm{M} \\ -10 \ \mathrm{M} \ \mathrm{M} \\ -10 \ \mathrm{M} \ \mathrm{M} \\ -10 \ \mathrm{M} \ \mathrm{M} \ \mathrm{M} \\ -10 \ \mathrm{M} \$	C.J.I., S.O. C.J.I., S.O. C.J.J., S.O. C.J.,
$\begin{array}{c} \text{CH-CH}_{4}^{\text{CH-CH}_{4}} \\ \text{d}_{5}^{\text{CH-CH}_{4}} \\ \text{CH-CH}_{4}^{\text{CH-CH}_{5}} \\ \text{d}_{5}^{\text{CH}_{4}} \\ \text{d}_{6}^{\text{CH}_{4}} \\ \text{d}_{6}^{\text{CH}_{6}} $	79 M 70 AC 91 AC 91 AC 91 M 95 M 70 AC 95 M 70 AC 82 M 85 AC 98 M 85 AC 98 M 85 AC 98 M 71 AC 74 M 85 M 74 M 75 M 76 AC 70 AC	104 106 A.W 212 214 P.W 212 214 P.W 158-163 M.ET 159-161 W 223-224 M.W 175-178 182-188 W 164-166 165-187 180-186 M.W 185-187 180-186 M.W 184-185 W 184-185 W 184-185 W 184-	$\begin{array}{c} +34 \ {\rm M} \\ -15 \ {\rm M} \\ -16 \ {\rm M} \\ -16 \ {\rm H} \\ -6 \ {\rm H} \\ -6 \ {\rm H} \\ +5 \ {\rm M} \\ -20 \ {\rm W} \\ +20 \ {\rm W} \\ +20 \ {\rm W} \\ +20 \ {\rm W} \\ +10 \ {\rm H} \\ +110 \ {\rm H} \\ +110 \ {\rm H} \\ +10 \ {\rm M} \\ -20 \ {\rm K} \\ -10 \ {\rm H} \\ +10 \ {\rm H} \\ -0 \ {\rm H} \\ +10 \ {\rm H} \\ +10 \ {\rm H} \\ +0 \ {\rm H} \\ $	C.J.E.S.O. C.J.L.S.O.
$\begin{array}{c} \text{H}_{2} & \\ \text{CHC, II, } \\ \text{H}_{2}\text{CH}_{1} & \\ \text{H}_{1}\text{CH}_{1} & \\ \text{H}_{1}\text{CH}_{1} & \\ \text{H}_{1}\text{CH}_{2}\text{CH}_{1} & \\ \text{H}_{1}\text{CH}_{2}\text{CH}_{1} & \\ \text{H}_{1}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{1} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{1} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2}\text{CH}_{2} & \\ \text{H}_{2}\text{CH}_{2} & \\ \text{CH}_{2}\text{CH}_{2} & \\ \text{CH}_{2}\text{CH}_{2} & \\ \text{CH}_{2} & \\ \text{CH}_{2}\text{CH}_{2} & \\ \text{CH}_{2} & \\ \ \text{CH}_{2} & \\ \text{CH}_{2} & \\ \ \text$	70 AC 91 AC 96 AC 91 M 95 M 70 AC 84 M 82 M 82 M 82 M 82 M 95 M 95 M 95 M 95 M 95 M 95 M 95 M 95	212 214 P-W 158-163 M. ET 159-161 W 223-224 M. W 223-224 M. W 175-178 182-188 W 164-186 185-187 180-196 MW 180-184 M. W 180-185 W 184-185 W 184-185 W 184-185 W 184-185 W 185-190 M 206-210 W 212-213 M 160-185 206-210 W 212-213 M 106-185 W 206-200 W 203-200 M. ET 208-200 W	$\begin{array}{c} -15 \ \mathrm{W} \\ +8 \ \mathrm{M} \\ -16 \ \mathrm{M} \\ -6 \ \mathrm{H} \\ +5 \ \mathrm{M} \\ +5 \ \mathrm{M} \\ +47 \ \mathrm{W} \\ +47 \ \mathrm{W} \\ +10 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ +10 \ \mathrm{M} \\ +26 \ \mathrm{M} \\ -21 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +10 \ \mathrm{H} \\ +6 \ \mathrm{H} \\ +6 \ \mathrm{H} \end{array}$	C.,H.,N.M. C.,H.,N.M., O., 2514,0 C.,H.,N.M.
$\begin{array}{c} CH_{4}CAB, \\ H_{4}CAB, \\ H_{4}CAB, \\ H_{5}CAB, \\ H_{5}CAB, \\ H_{5}CB, CAB, \\ H_{5}CB, CAB, \\ DH_{6}CB, CAB, \\ DH_{6}CB, CAB, \\ DH_{6}CB, \\ CAB, \\ DH_{6}CB, \\ CAB, \\ DH_{6}CB, \\ DH$	91 AC 96 AC 91 M 95 M 70 AC 74 M 82 M 85 AC 95 AC 95 M 75 AC 95 M 72 AC 95 M 72 AC 44 M 85 M 74 M 85 M 74 M 85 M 74 M 85 M	159 161 W 223-224 M-W 175-178 182-188 W 164-166 185-187 180-196 M-W 180-196 M-W 180-185 W 184-185 W 184-185 W 185-190 M 185-190 M 267-238 W 267-238 W 267-245 W 269-240 W 212-245 M 269-240 W 203-200 W 108-180 M ET	$\begin{array}{c} +8 \ \mathrm{M} \\ -16 \ \mathrm{M} \\ -6 \ \mathrm{H} \\ +5 \ \mathrm{M} \\ -20 \ \mathrm{W} \\ +12 \ \mathrm{W} \\ +110 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ -10 \ \mathrm{M} \\ +10 \ \mathrm{M} \\ -26 \ \mathrm{AC} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +10 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ +10 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ -10 \ \mathrm{H} \\ +16 \ \mathrm{H} \\ +16 \ \mathrm{H} \end{array}$	C.J.H., SAO, -0. 2511,0 C.J.H., SAO, C.J.H., SAO, C.J.H., SAO, C.J.H., SAO, C.J.H., SAO, -0. 314,0 C.J.H., SAO, -0. 314,0 C.J.H., SAO, -0. 314,0 C.J.H., SAO, C.J.H., SAO, C.J
$\begin{array}{c} \\ H_{11} & t_{1} \\ H_{11} CH_{11} \\ H_{11} CH_{12} CH_{11} \\ H_{11} CH_{12} CH_{11} \\ H_{11} CH_{12} CH_{11} \\ H_{11} CH_{12} CH_{11} \\ H_{12} CH_{22} CH_{12} \\ H_{12} CH_{22} CH_{21} \\ H_{12} CH_{22} \\ H_{22} CH_{21} \\ H_{12} CH_{22} \\ H_{22} CH_{21} \\ H_{22} \\ CH_{22} CH_{21} \\ H_{22} \\ CH_{22} \\ CH_{$	91 M 95 M 70 AC 84 M 82 M 95 AC 95 M 95 M 95 M 72 AC 44 M 96 M 14 96 M 74 M 85 M 71 M 96 AC	223-224 M W 175-178 182-188 W 185-187 190-196 M-W 183-187 190-196 M-W 184-185 W 184-185 W 184-185 W 184-185 W 184-185 W	$\begin{array}{c} -6 \ \mathrm{II} \\ +5 \ \mathrm{M} \\ -20 \ \mathrm{W} \\ +12 \ \mathrm{W} \\ +12 \ \mathrm{W} \\ +12 \ \mathrm{W} \\ +11 \ \mathrm{H} \\ -13 \ \mathrm{H} \\ -26 \ \mathrm{AC} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +6 \ \mathrm{H} \end{array}$	$\begin{split} C_{13}H_{16}N_{3}O_{2} \\ C_{13}H_{16}N_{3}O_{4} \\ C_{13}H_{18}N_{3}O_{4}O_{5}H_{4}O_{4}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{2}O_{5}H_{3}O_{1}O_{5}H_{3}O_{2}O_{5}H_{3}O_{2}O_{5}H_{3}O_{2}O_{5}H_{3}O_{2}O_{5}H_{3}O_{1}O_{5}H_{3}O_{2}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{1}O_{5}H_{3}O_{2}O_{5}H_{3}O_{5}O_{5}H_{3}O_{5}O_{5}H_{3}O_{5}O_{5}H_{3}O_{5}O_{5}H_{5}O_{5}O_{5}H_{5}O_{5}O_{5}H_{5}O_{5}O_{5}O_{5}H_{5}O_{5}O_{5}O_{5}H_{5}O_{5}O_{5}O_{5}O_{5}O_{5}O_{5}O_{5}O$
$ \begin{array}{c} H_{0}(CH, H_{1}, L_{2}, H_{2}, H_{2}, CH, CH_{3}, L_{4}, L_{2}, H_{3}, CH, CH_{4}, L_{3}, L_{4}, CH, CH_{4}, L_{4}, L_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, L_{4}, CH_{4}, CH_{4}, L_{4}, CH_{4}, CH_{4}, L_{4}, CH_{4}, CH_{4}$	95 M 70 AC 84 M 82 M 95 AC 88 M 95 M 95 M 95 M 95 M 72 AC 72 AC 74 M 85 M 74 M 85 M 74 M 86 AC	175-178 172-188 W 164-166 185-187 180-196 M-W 180-184 M W 184-185 W 184-185 W 184-185 W 185-190 M 160-185 269-210 W 212-213 M 209-210 W 209-210 W 209-200 W 203-200 M ET 208-200 W	$\begin{array}{c} +5 \ \mathrm{M} \\ -20 \ \mathrm{W} \\ +47 \ \mathrm{W} \\ +110 \ \mathrm{H} \\ +110 \ \mathrm{H} \\ +111 \ \mathrm{H} \\ +10 \ \mathrm{M} \\ +6 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ +50 \ \mathrm{W} \\ +10 \ \mathrm{M} \\ +10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +16 \ \mathrm{H} \\ +16 \ \mathrm{H} \end{array}$	C <sub>0</sub> H <sub>2</sub> N <sub>2</sub> 0, H <sub>4</sub> O C <sub>0</sub> H <sub>2</sub> N <sub>2</sub> 0, C <sub>3</sub> H <sub>4</sub> O C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> 0, 0.3H <sub>4</sub> O C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> 0, 0.3H <sub>4</sub> O C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> 0, C <sub>4</sub> H <sub>4</sub> N <sub>2</sub> O, C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> O, C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> O, C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> O, 0.3H <sub>4</sub> O C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> O, C <sub>4</sub> H <sub>2</sub> N <sub>2</sub> O,
$ \begin{array}{c} H_{0}(CH, H_{1}, L_{2}, H_{2}, H_{2}, CH, CH_{3}, L_{4}, L_{2}, H_{3}, CH, CH_{4}, L_{3}, L_{4}, CH, CH_{4}, L_{4}, L_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, CH_{4}, L_{4}, CH_{4}, CH_{4}, L_{4}, CH_{4}, CH_{4}, L_{4}, CH_{4}, CH_{4}$	70 AC 84 M 82 M 95 AC 96 M 85 AC 95 AC 95 AC 95 M 95 M 72 AC 44 M 87 M 74 M 85 M 71 M 96 AC	182-188         W           164-166         183-187           183-187         190-196           180-184         M           180-196         184-185           184-185         W           184-185         W           184-185         W           184-185         W           184-185         W           184-185         W           184-182         W           267         288           212         213           190+208         W           208-200         W           208-200         W           208-200         W           168-180         M           168-180         M           168-180         M           168-180         M           168-180         M           168-180         M	$\begin{array}{c} -20 \ \mathrm{W} \\ +47 \ \mathrm{W} \\ +12 \ \mathrm{W} \\ +11 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ -26 \ \mathrm{AC} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{M} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +16 \ \mathrm{H} \\ +6 \ \mathrm{M} \\ +6 \ \mathrm{H} \end{array}$	C.J.H.NYA C.H.S.YA-0.5HAO C.J.H.S.YA-0.5HAO C.J.H.S.YA-0.5HAO C.J.H.SAO
$\begin{array}{c} H_{1}(CH,CH_{1}; \ \nu \\ H_{2}(CH,CH_{2}; \ \nu \\ H_{2}(CH,CH_{3}; \ \nu \\ H_{3}(CH,CH_{3}; \ \nu \\ H_{3}(CH,CH,CH_{3}; \ \nu \\ H_{3}(CH,CH,CH,CH,CH,CH,CH,CH,CH,CH,CH,CH,CH,C$	<ul> <li>84 M</li> <li>82 M</li> <li>95 AC</li> <li>98 M</li> <li>95 M</li> <li>98 M</li> <li>98 M</li> <li>98 M</li> <li>98 M</li> <li>96 M</li> <li>72 AC</li> <li>96 M</li> <li>74 M</li> <li>74 M</li> <li>85 M</li> <li>71 M</li> <li>96 AC</li> </ul>	164-166 185-187 180-196 M-W 180-186 M-W 184-185 W 184-185 W 267 238 W 287 238 W 185-190 M 267 238 W 287 249 M 289 240 M 212 245 M 208 240 W 203-209 M 208 200 W 108 180 M ET	$\begin{array}{c} +47 \ \mathrm{W} \\ +12 \ \mathrm{W} \\ +16 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ -13 \ \mathrm{H} \\ +6 \ \mathrm{M} \\ +26 \ \mathrm{AC} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +9 \ \mathrm{H} \\ +6 \ \mathrm{H} \end{array}$	C <sub>0</sub> H <sub>0</sub> X(b <sub>2</sub> , 0, 3H <sub>2</sub> O C <sub>0</sub> H <sub>2</sub> X(b <sub>2</sub> , 0, 3H <sub>2</sub> O C <sub>0</sub> H <sub>2</sub> X(b <sub>2</sub> , 0, 3H <sub>2</sub> O C <sub>0</sub> H <sub>1</sub> X(b) C <sub>0</sub> H <sub>2</sub> X(b)
$\begin{array}{c} H_{1}(CH_{1}; \ \mbox{${\rm P-R}$CH}; \mbox{${\rm P-R}$CH}; \mbox{${\rm P-R}$CH}; \mbox$	\$2 M 95 AC 98 M \$5 AC 95 AC 98 M 72 AC 98 M 72 AC 94 M 74 M \$7 M 74 M \$5 M 71 M	185-187 190-196 M-W 180-184 M W 184-185 W 189-192 237-238 W 188-190 M 188-190 M 212-213 M 199-208 W 203-200 M-ET 208-200 W 168-180 M ET	$\begin{array}{c} +12 \ \mathrm{W} \\ +16 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ -13 \ \mathrm{H} \\ \hline +6 \ \mathrm{M} \\ -26 \ \mathrm{AC} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ -6 \ \mathrm{M} \\ +6 \ \mathrm{H} \end{array}$	C.H.B.NO <sub>2</sub> -0.3H <sub>2</sub> O C.H.B.NO <sub>2</sub> C.H.B.NO <sub>2</sub> C.H.B.NO <sub>2</sub> C.H.NO <sub>2</sub> C.H.NO <sub>2</sub> -0.3H <sub>2</sub> O C.H.NO <sub>2</sub> -0.3H <sub>2</sub> O C.H.SNO <sub>2</sub> -0.3H <sub>2</sub> O C.H.SNO <sub>2</sub> -0.3H <sub>2</sub> O
$\begin{array}{c} \text{BrcHcRcH}_{CHC}, \text{BrcHcCH}_{CH}, \\ \text{CH}_{CH}, \\ \text{CH}_{CHC}, \text{BrcHcH}_{CHC}, \text{brcHcH}_{CHC}, \\ \text{BrcHcCH}_{CHC}, \text{brcHcH}_{CHC}, \\ \text{BrcHcCH}_{CHC}, \text{BrcHcH}_{HC}, \\ \text{BrcHcCH}_{CHC}, \text{BrcHcH}_{HC}, \\ \text{BrcHcCH}_{CHC}, \\ \text{BrcHcH}_{CHC}, \\ \text{BrcHcH}_{CHC}, \\ \text{BrcHc}, \\ \\ \text{BrcHc}, \\ \text{BrcHc}, \\ \\ \text{BrcHc}, \\ \text{BrcHc}, \\ \\ \\ \text{BrcHc}, \\ \\ \\ \text{BrcHc}, \\ \\ \\ \\ \text{BrcHc}, \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	95 AC 68 M 85 AC 95 M 95 M 95 M 95 M 72 AC 44 M 87 M 74 M 85 M 74 M 85 M 71 M	190-196 M-W 180-184 M W 184-185 W 184-185 W 184-185 W 185-190 M 185-190 M 160-185 269-210 W 212-213 M 199-208 W 203-200 M-ET 208-200 W 168-180 M ET	$\begin{array}{c} +16 \ \mathrm{H} \\ +11 \ \mathrm{H} \\ -13 \ \mathrm{H} \\ +6 \ \mathrm{M} \\ -26 \ \mathrm{AC} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +9 \ \mathrm{H} \\ -6 \ \mathrm{M} \\ +6 \ \mathrm{H} \end{array}$	C.J.H.SA): C.J.H.SA):
$\begin{array}{c} \text{BROCH.} \\ \text{CH.} \\ $	68 M 85 AC 95 M 95 AC 98 M 95 AC 98 M 72 AC 74 M 74 M 85 M 74 M 85 M 71 M 96 AC	180-184 M W           184-185 W           184-192           237 238 W           180-192           237 238 W           160-185           206-210 W           212-213 M           199-208 W           238-209 M-ET           208-200 W           168-180 M ET	$\begin{array}{c} +11\ \mathrm{H} \\ -13\ \mathrm{H} \\ -6\ \mathrm{M} \\ -26\ \mathrm{AC} \\ +10\ \mathrm{M} \\ +5\ \mathrm{W} \\ -21\ \mathrm{W} \\ -21\ \mathrm{W} \\ +10\ \mathrm{H} \\ +14\ \mathrm{H} \\ +9\ \mathrm{H} \\ -6\ \mathrm{M} \\ +6\ \mathrm{H} \end{array}$	$\begin{array}{c} C_{n}H_{5}N_{5}\Omega_{1} \\ C_{1}H_{n}N_{5}\Omega_{1} \\ C_{1}H_{n}N_{5}\Omega_{2} \\ C_{n}H_{n}N_{5}\Omega_{2} \\ C_{n}H_{n}N_{5}\Omega_{2} \\ C_{n}H_{n}N_{5}\Omega_{2} \\ C_{1}H_{n}N_{5}\Omega_{3} \\ C_{1}H_{n}N_{5}\Omega_{4} \\ C_{2}H_{n}N_{5}\Omega_{4} \\ C_{n}H_{n}N_{5}\Omega_{5} \\ C_{n}H_{n}N_{5}\Omega_{5} \\ C_{n}H_{n}FN_{2}\Omega_{1} \\ C_{n}H_{n}FN_{3}\Omega_{5} \end{array}$
C.H. CH.C.H.(OCH_O IS, I H.C.H.C.H.: 1- CH.C.H.O.H.C.H.: 1- CH.C.H.O.H.4 H.C.H.C.H.O.H.4 H.C.H.C.H.O.H.4 H.C.H.C.H.O.H.4 H.C.H.C.H.NBO,C.H., 4: D.H.C.H.C.H.F.4 $\square$ CH.c.C.H.H.: 1- CH.c.C.H.H.: 1- CH.c.C.H.H.: 1-	55 AC 95 M 95 AC 98 M 95 M 72 AC 44 M 74 M 74 M 85 M 71 M 96 AC	184-185 W           184-192           237-238 W           188-190 M           160-185           209-210 W           209-210 W           203-209 M-ET           208-200 W           168-180 M ET	$\begin{array}{c} -13 \ \mathrm{H} \\ +6 \ \mathrm{M} \\ -26 \ \mathrm{AC} \\ +10 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +9 \ \mathrm{H} \\ -6 \ \mathrm{M} \\ +6 \ \mathrm{H} \end{array}$	$\begin{array}{c} C_{11}H_{18}N_{1}O_{1} \\ \hline \\ C_{14}H_{18}N_{2}O_{1} \\ C_{14}H_{18}N_{2}O_{1}O_{1}O_{1}O_{1}O_{1}O_{1}O_{1}O_{1$
$\begin{array}{c} \text{Hechkochorsa}\\ \text{Hichkochorsa}\\ \text{Hichkochorsa}\\$	95 M 95 AC 98 M 95 M 72 AC 44 M 87 M 74 M 85 M 71 M 96 AC	189-192 237-238 W 188-190 M 160-185 209-210 W 212-213 M 199-208 W 203-209 M-ET 208-209 W 168-480 M ET	+6 M -26 AC +10 M +5 W -21 W -10 H +14 H +9 H -6 M +6 H	$\begin{array}{c} C_{11}H_{18}N_{1}O_{1}\\ C_{21}H_{18}N_{2}O_{1}\\ C_{31}H_{18}N_{2}O_{1}O_{1}O_{1}O_{1}\\ C_{31}H_{18}N_{2}O_{1}\\ C_{32}H_{18}N_{2}O_{1}\\ C_{32}H_{18}N_{2}O_{2}\\ C_{31}H_{18}N_{2}O_{2}\\ C_{32}H_{17}FN_{2}O_{1}\\ C_{32}H_{17}FN_{2}O_{1}\\ C_{32}H_{17}FN_{2}O_{1}\\ \end{array}$
$\begin{array}{c} \mathbb{H}(\Theta \mathrm{H}(\mathrm{GH}_{1}) \\ \mathbb{C}\mathrm{H}_{\mathcal{C}}(\mathrm{H}(\mathrm{OH}) \\ \mathrm{H}(\mathrm{C}\mathrm{H}_{\mathcal{C}}(\mathrm{H}, \mathrm{OH}) \\ \mathrm{H}(\mathrm{C}\mathrm{H}_{\mathcal{C}}(\mathrm{H}, \mathrm{OH}) \\ \mathrm{H}(\mathrm{C}\mathrm{H}_{\mathcal{C}}(\mathrm{H}, \mathrm{OH}) \\ \mathrm{H}(\mathrm{C}\mathrm{H}_{\mathcal{C}}(\mathrm{H}, \mathrm{OH}) \\ \mathrm{H}_{\mathcal{C}}(\mathrm{H}, \mathrm{F}\mathrm{H}) \\ \mathrm{H}_{\mathcal{C}}(\mathrm{H}, \mathrm{F}) \\ \mathrm{H}_{$	98 M 95 M 72 AC 44 M 96 M 87 M 74 M 85 M 71 M 96 AC	188, 190 M 160-185 209-210 W 212-213 M 199-208 W 203-209 M-ET 208-206 W 168-180 M ET	$\begin{array}{c} +10 \ \mathrm{M} \\ +5 \ \mathrm{W} \\ -21 \ \mathrm{W} \\ -10 \ \mathrm{H} \\ +14 \ \mathrm{H} \\ +9 \ \mathrm{H} \\ -6 \ \mathrm{M} \\ +6 \ \mathrm{H} \end{array}$	$\begin{array}{l} C_{12}H_{48}N_{4}O_{4}\!\cdot\!0.5H_{4}O\\ C_{13}H_{48}N_{4}O_{4}\\ C_{13}H_{48}N_{4}O_{4}\\ C_{13}H_{48}N_{5}O_{4}\\ C_{14}H_{48}N_{5}O_{5}\\ C_{14}H_{48}N_{5}O_{5}S\\ C_{15}H_{47}N_{5}O_{5}\\ C_{17}H_{45}N_{5}O_{4}\\ C_{77}H_{45}N_{5}O_{5}\\ \end{array}$
$\begin{array}{c} \mathrm{BLCHLOH}_{4}\\ \mathrm{H}_{1}\mathrm{OH}_{4}\\ \mathrm{H}_{1}\mathrm{OH}_{4}\mathrm{H}_{1}\mathrm{OH}_{5}\mathrm{H}_{6}\mathrm{OH}_{4}\mathrm{H}_{1}\mathrm{I}_{2}\mathrm{H}_{2}\mathrm{OH}_{4}\mathrm{H}_{1}\mathrm{H}_{1}\mathrm{H}_{2}\mathrm{H}_{2}\mathrm{OH}_{4}\mathrm{H}_{1}\mathrm{H}_{1}\mathrm{H}_{2}\mathrm{H}_{4}\mathrm{H}_{1}\mathrm{H}_{1}\mathrm{H}_{4}\mathrm{H}_{4}\mathrm{H}_{1}\mathrm{H}_{4$	95 M 72 AC 44 M 87 M 74 M 85 M 71 M 96 AC	160–185 209–210 W 212–213 M 199–208 W 203–209 M~ET 208–209 W 168–180 M~ET	+5 W -21 W - 10 H +14 H +9 H -6 M +6 H	$\begin{array}{l} C_{13}H_{18}N_{2}O_{4}\\ C_{12}H_{18}N_{2}O_{4}\\ C_{12}H_{18}N_{2}O_{4}\\ C_{14}H_{21}N_{2}O_{5}\\ C_{44}H_{21}N_{2}O_{5}\\ C_{32}H_{47}FN_{2}O_{5}\\ C_{72}H_{45}FN_{2}O_{5}\\ \end{array}$
$\begin{array}{c} H_1OH \rightarrow \\ H_1OH_4(A_1OH \rightarrow : 1_{r-1} - H_{r-1}OH_{r-1}(A_1) + H_2O_1(A_1) + H_2O$	72 AC 44 M 96 M 87 M 74 M 85 M 71 M 96 AC	209-210 W 212-213 M 199-208 W 203-209 M-ET 208-209 W 168-180 M-ET	-21 W -10 H +14 H +9 H -6 M +6 H	$\begin{array}{l} C_{12}H_{18}N_2O_4\\ C_{16}H_{18}N_2O_5\\ C_{16}H_{23}N_2O_2S\\ C_{16}H_{17}N_2O_5\\ C_{17}H_{17}FN_2O_5\\ C_{17}H_{15}FN_2O_1\end{array}$
$\begin{array}{c} H)CH_{A}(H,OH \rightarrow (:::))\\ CH_{A}(H,NH \rightarrow (::))\\ H)C(H,F \rightarrow (::))\\ H)C(H,F \rightarrow (::))\\ H,F \rightarrow (::)\\ H,F \rightarrow (::)\\ H,F \rightarrow (::))\\ H \rightarrow (:::)\\ H \rightarrow (:::))\\ H \rightarrow (:::)\\ H \rightarrow (:::))\\ H \rightarrow (:::))\\ H \rightarrow (:::))$	44 M 96 M 87 M 74 M 85 M 71 M 96 AC	212-213 M 199-208 W 203-209 M~ET 208-209 W 168-180 M~ET	- 10 H +14 II +9 H -6 M +6 H	$\begin{array}{l} C_{12}H_{18}N_2O_5\\ C_{14}H_{13}N_8O_5S\\ C_{16}H_{17}FN_2O_5\\ C_{12}H_{15}FN_2O_5\end{array}$
$\begin{array}{c} H_{C}(A_{1},NHSO_{1}CH_{1}+4)\\ CH_{C}(A_{1},F+4)\\ H_{1},F+4\\ \end{array}$	<ul> <li>96 M</li> <li>87 M</li> <li>74 M</li> <li>85 M</li> <li>71 M</li> <li>96 AC</li> </ul>	199-208 W 203-209 M~ET 208-209 W 168-180 M~ET	+14 II +9 H -6 M +6 H	$\begin{array}{c} C_{14}H_{41}N_{3}O_{2}S\\ C_{55}H_{47}FN_{2}O_{3}\\ C_{72}H_{15}FN_{7}O_{3} \end{array}$
$H_{C}H_{F}H \rightarrow H_{F}H \rightarrow H_{F}$	87 M 74 M 85 M 71 M 96 AC	203–209 MET 208–209 W 168–180 M. ET	+9 H -6 M +6 H	$\begin{array}{l} C_{12}H_{17}FN_2O_3\\ C_{12}H_{15}FN_2O_3\end{array}$
$\overset{H,F-4}{\underset{\bigcirc}{\overset{\longrightarrow}{\overset{\longrightarrow}{\overset{\longrightarrow}{\overset{\longrightarrow}{\overset{\longrightarrow}{\overset{\longrightarrow}{\overset{\longrightarrow}{\overset$	74 M 85 M 71 M 96 AC	208-209 W 168-180 M-ET	-6 M +6 H	$\mathbf{C}_{12}\mathbf{H}_{13}\mathbf{FN}_{2}\mathbf{O}_{1}$
UH-re-C <sub>4</sub> H <sub>1</sub> : 1- CH-re-C <sub>4</sub> H <sub>1</sub> : 1-	85 M 71 M 96 AC	168-180 M-ET	+6 H	
CH-c-C <sub>6</sub> H <sub>11</sub> ; D-	71 M 96 AC			CH189505-0.999150
CH-c-C <sub>6</sub> H <sub>11</sub> ; D-	96 AC	195-196 M	-17 M	
CH-c-C <sub>6</sub> H <sub>11</sub> ; D-				$\mathrm{C}_{10}\mathrm{H}_{11}\mathrm{N}_{2}\mathrm{O}_{1}$
CH-c-C <sub>6</sub> H <sub>11</sub> ; D-		203205 M	- 22 M	$C_{45}H_{15}N_4O_3$
CH-c-C <sub>6</sub> H <sub>11</sub> ; D-			- 22 M - 19 M	
	60 M	184–185 M–W 207–208 M–W	- 19 M + 16 M	$C_{13}H_{23}N_2O_3$ $C_{13}H_{23}N_2O_3$
	94 AC	193-202 M-W	+7 AC	$C_0H_{22}N_2O_2$
Ha)CH2re-C6H11: 1	78 M	179-180 P-ET	- 14 W	C <sub>14</sub> H <sub>26</sub> N <sub>2</sub> O <sub>17</sub> 0, 25H <sub>2</sub> O
H <sub>8</sub> )CH <sub>2</sub> -c-C <sub>6</sub> H <sub>11</sub> ; p-	64 M	194-196	+1 W	$C_{14}H_{18}N_2O_3$
	91 M	224-225 W	+16 H	$C_{10}H_{18}N_2O_3$
CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	92 M	190-194 A W	$\pm 9 \text{ AC}$	C <sub>2</sub> H <sub>2</sub> N <sub>2</sub> O <sub>4</sub> -0, 5H <sub>2</sub> O
(CH <sub>4</sub> )CH <sub>3</sub> ′ CH <sub>4</sub> CH(CH <sub>8</sub> )CH <sub>5</sub> ; 1	89 M 91 AC	222-223 MW 166-168 W	-17 M	$C_{10}H_{20}N_2O_3$ $C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$
				$C_{10}H_{20}N_2O_3(0, 3H_2O)$ $C_{10}H_{20}N_2O_3(0, 25H_2O)$
	93 M	196~200 A~W	+12 AC	C <sub>10</sub> H <sub>20</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O
	88 M	200–201 W	+9 AC	$C_{15}H_{26}N_2O_3 \cdot 0$ , $25H_2O$
CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	98 M	[88-193 A-W	$\pm 11$ AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$
	89 M	200-201 W	+8 AC	$C_0H_{22}N_2O_4 \cdot 0.25H_2O$
				$C_{11}H_{22}N_2O_4$ $C_1H_2N_2O_4O_222H_2O_4$
				C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>5</sub> +0.25H <sub>2</sub> O C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>5</sub> +0.25H <sub>2</sub> O
				$C_{11}H_{21}N_2O_3 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.5H_2O$
	94 M	187-189 W	5 M	C <sub>10</sub> H <sub>22</sub> N <sub>2</sub> O <sub>5</sub> , H <sub>2</sub> O
	97 M	213-214 M-W	-5 M	$C_1(H_2(N_2O_3), 0.5H_2O$
CH <sub>2</sub> ) <sub>4</sub> CH <sub>1</sub> : D-	96 M	217-218 M-W	+5 M	$C_{11}H_{22}N_2O_3$
				$C_{13}H_{22}N_2O_3$
				$C_{13}H_{22}N_2O_3 \cdot 0.5H_2O$ $C_{12}H_2N_2O_3$
				C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>3</sub> C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>3</sub> ·0.5H <sub>2</sub> O
		192–195 W	-26 H	C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>3</sub> ·0.25H <sub>2</sub> O
	77 M	166~170 M-ET	+3 M	C <sub>10</sub> H <sub>20</sub> N <sub>2</sub> O <sub>4</sub> ·0.25H <sub>2</sub> O
	85 M	180-190	-8 M	$C_{12}H_{21}N_2O_3\cdot 0, 5H_4O$
			n t-Glu. ≥T	he amide was der <b>ive</b> d fro
	CH <sub>4</sub> CH <sub>4</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 1 H <sub>2</sub> CH <sub>2</sub> CH(CH <sub>2</sub> )CH <sub>3</sub> : 1 H <sub>4</sub> CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 1 H <sub>4</sub> CH <sub>4</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 1 CH <sub>2</sub> CH <sub>4</sub> OCH <sub>2</sub> CH <sub>3</sub> CH <sub>2</sub> ) <sub>2</sub> CH <sub>3</sub> eviations and explanatic rom p-Asp. <sup>*</sup> All compo	$\begin{array}{llllllllllllllllllllllllllllllllllll$	$\begin{array}{llllllllllllllllllllllllllllllllllll$	$\begin{array}{llllllllllllllllllllllllllllllllllll$

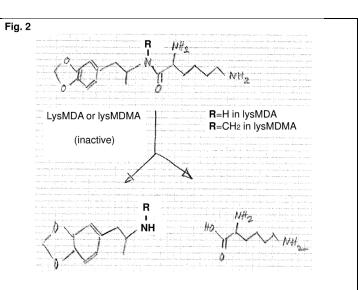
	<ul> <li>trained to discriminate cocaine (10 mg/kg, intraperitoneally), methamphetamine (1 mg/kg, intraperitoneally), ±MDMA (1.5 mg/kg, intraperitoneally), or (-)-2,5-dimethoxy-4-methylamphetamine hydrochloride (0.5 mg/kg, intraperitoneally) from salineMDAI fully substituted for the discriminative stimulus effects of MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine (7.5 mg/kg), but produced only 73% methamphetamine- appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity and drug discrimination were similar to those produced by MDMA, having both psychostimulant-like and hallucinogen-like effects; thus, MDAI may have similar abuse potential as MDMA.</li> <li>5. Nichols (1986) "Synthesis and Evaluation of 2,3-Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5-Dimethoxy-4-methylphenyl)-2-aminopropane: Drug</li> </ul>
	Discrimination Studies in Rats" Vol. 29 (2): 302-304.
	From page 304, paragraph 2: "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5- (methylenedioxy)amphetamine (8; MMDA-2) is active $H_3C$ $\$ NH2
	O OCH3
	<b>8</b> and produces clear central effects at an oral dosage of 25 mg of the hydrochloride"
7. The compound of claim 1, wherein R <sub>1</sub> is:	2. U.S. Pat. App. Doc. No. 2009/0131335 "ABUSE- RESISTANT AMPHETAMINE PRODRUGS" (Published 21 May 2009).
H H K H	From <b>claim 1</b> : "A method, in a subject, of preventing euphoria due to an amphetamine or a pharmaceutically effective salt thereof, said method comprising orally administering to said subject a prodrug or a salt thereof said <b>prodrug comprising said amphetamine covalently</b> <b>bonded to a single amino acid</b> or to a peptide comprising from 2 to 10 amino acids, whereby the blood levels of said amphetamine achieve a therapeutically effect level but said blood levels do not result in a euphoric effect."

From paragraph [0096]: "The amphetamine, A, can be
any of the sympathomimetic phenethylamine
derivatives which have central nervous system
stimulant activity such as amphetamine, or any
derivative, analog, or salt thereof. Exemplary
amphetamines include, but are not limited to,
amphetamine, methamphetamine, methylphenidate, p-
methoxyamphetamine, <b>methylenedioxyamphetamine</b> ,
2,5-dimethoxy-4-methylamphetamine, 2,4,5-
trimethoxyamphetamine, and <b>3,4</b> -
methylenedioxymethamphetamine"
methyleneuloxymethamphetamme
From <b>paragraph [0107]</b> : "Each amino acid can be any
one of the L- or D-enantiomers, preferably L-enantiomers,
of the naturally occurring amino acids: alanine (Ala or A),
arginine (Arg or R), asparagine (Asn or N), aspartic acid
(Asp or D), cysteine (Cys or C), glycine (Gly or G),
glutamic acid (Glu or E), glutamine (Gln or Q), histidine
(His or H), isoleucine (Ile or I), leucine (Leu or L), lysine
(Lys or K), methionine (Met or M), proline (Pro or P),
phenylalanine (Phe or F), serine (Ser or S), <b>tryptophan</b>
( <b>Trp or W</b> ), threonine (Thr or T), tyrosine (Tyr or Y), and
valine (Val or V)"
4. Gatch (2016) "Locomotor, discriminative stimulus, and
place conditioning effects of MDAI in rodents" Behavioral
Pharmacology, Vol 27 (6): 497-505.
From <b>abstract</b> : "5,6-Methylenedioxy-2-aminoindane
(MDAI) has become a common substitute for $(\pm)$ -3,4-
methylenedioxymethamphetamine (MDMA) in Ecstasy.
MDAI is known to produce MDMA-like discriminative
stimulus effects, but it is not known whether MDAI has
psychostimulant or hallucinogen-like effects. MDAI was
tested for locomotor stimulant effects in mice and
subsequently for discriminative stimulus effects in rats
trained to discriminate cocaine (10 mg/kg,
intraperitoneally), methamphetamine (1 mg/kg,
intraperitoneally), ±MDMA (1.5 mg/kg, intraperitoneally),
or (-)-2,5-dimethoxy-4-methylamphetamine hydrochloride
(0.5 mg/kg, intraperitoneally) from salineMDAI fully
substituted for the discriminative stimulus effects of
MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4-
methylamphetamine hydrochloride (5 mg/kg), and cocaine
(7.5 mg/kg), but produced only 73% methamphetamine-
appropriate responding at a dose that suppressed
responding (7.5 mg/kg). MDAI produced tremors at
10 mg/kg in one methamphetamine-trained rat. MDAI
produced conditioned place preference from 0.3 to
10 mg/kg. The effects of MDAI on locomotor activity
and drug discrimination were similar to those
and usug discrimination were similar to those

8. The compound of claim 1, wherein said compound is selected from any one of the following compounds: $\begin{cases} \downarrow \downarrow \uparrow \uparrow \downarrow $	produced by MDMA, having both psychostimulant-like and hallucinogen-like effects; thus, MDAI may have similar abuse potential as MDMA. 5. Nichols (1986) "Synthesis and Evaluation of 2,3- Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5- Dinethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304. 5. From page 304, paragraph 2: "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5- methylenedioxy)amphetamine (8; MMDA-2) is active $H_{3}C \downarrow \cap NH_{2} \\ c \downarrow c \downarrow c \downarrow C H_{3} \\ e$ and produces clear central effects at an oral dosage of 25 mg of the hydrochloride" From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020): From claim 1: "1. 3,4-methylenedioxy-amphetamine beptide according to general formula I: ( + (+ (+ (+ (+ (+ (+ (+ (+ (+ (+ (+ (+
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1. US Priority Doc. No. 63/115,245 of US Pat. Doc. No. "MDMA PRODRUGS 17/518,846 TO ASSIST PSYCHOTHERAPY" (Priority doc filed 18 November 2020). From claim 1: "A compound comprising a prodrug including a psychoactive base substance attached to an amino acid." From **claim 3**: "The compound of claim 2, wherein the MDMA or MDMA-like substance is chosen from the group consisting of MDA...MDAI...mixed dopaminergicserotonergic amphetamine and their N-alkylated analogs..." From **claim 4**: "The compound of claim 1, wherein said amino acid is chosen from the group consisting of lysine, alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine, leucine, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, and valine." From claim 5: "The compound of claim 1, wherein the amino acid is chosen from the group consisting of natural or synthetic." Figure 1A: Fig. 1A **MDMA** Figure 2:

or a pharmaceutically acceptable salt thereof.



2. U.S. Pat. App. Doc. No. 2009/0131335 "ABUSE-RESISTANT AMPHETAMINE PRODRUGS" (Published 21 May 2009).

From **claim 1**: "A method, in a subject, of preventing euphoria due to an amphetamine or a pharmaceutically effective salt thereof, said method comprising orally administering to said subject a prodrug or a salt thereof said **prodrug comprising said amphetamine covalently bonded to a single amino acid** or to a peptide comprising from 2 to 10 amino acids, whereby the blood levels of said amphetamine achieve a therapeutically effect level but said blood levels do not result in a euphoric effect."

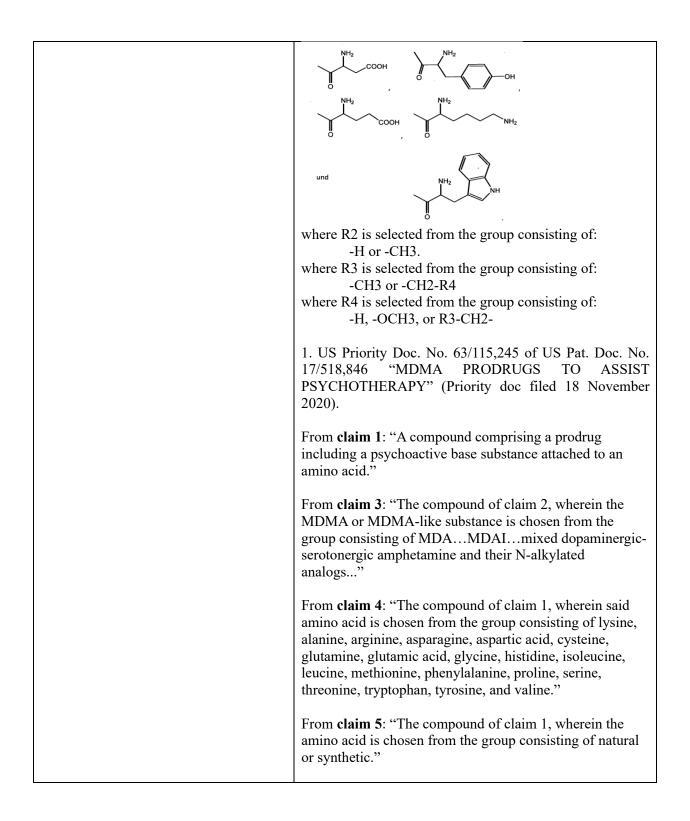
From paragraph [0096]: "The amphetamine, A, can be any of the sympathomimetic phenethylamine derivatives which have central nervous system stimulant activity such as amphetamine, or any derivative, analog, or salt thereof. Exemplary amphetamines include, but are not limited to, amphetamine, methamphetamine, methylphenidate, pmethoxyamphetamine, methylenedioxyamphetamine, 2,5-dimethoxy-4-methylamphetamine, 2,4,5trimethoxyamphetamine, and 3,4methylenedioxymethamphetamine..."

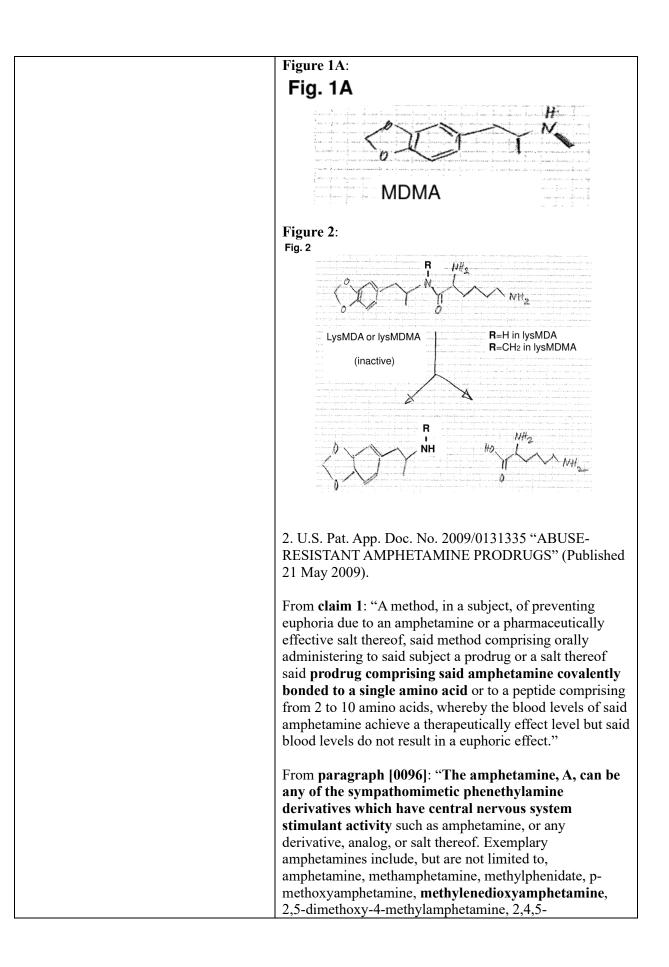
From **paragraph** [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: **alanine** (Ala or A), arginine (Arg or R), **asparagine** (Asn or N), aspartic acid (Asp or D), cysteine (Cys or C), glycine (Gly or G), **glutamic acid** (Glu or E), **glutamine** (Gln or Q), histidine (His or H), **isoleucine** (Ile or I), leucine (Leu or

amides" J. Med. Chem. Vol 13(6): 1217-1221.
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Ta	able	e 2 (entry 64):					
				are II			
No	ίο.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula'	Taste
50 51		$INCH(CH_3)CH_2C_6H_5;$ 1 $INCH(CH_3)CH_2C_6H_5;$ 12-	88 AC 98 AC	197–198 W 222-225 E ·W	- 12 M + 14 W	$C_{13}H_{18}N_2O_3$ $C_{13}H_{18}N_2O_3$	50
52 53		INCH(CH <sub>2</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> INCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+34 M -15 W	$C_{14}H_{26}N_2O_3$ $C_{12}H_{16}N_2O_3$	-
54 55	54 H	INCH(C <sub>2</sub> H <sub>5</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> INC(CH <sub>5</sub> ) <sub>2</sub> CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub>	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{20}N_2O_4 \cdot 0$ , 25H <sub>2</sub> O $C_{14}H_{20}N_2O_5$	3 20
56		INCHCH.	91 M	223-224 M-W	6 II	CuHusN <sub>2</sub> O <sub>2</sub>	10
		CH:					
57		INCHCHC <sub>6</sub> H <sub>3</sub> ; t- INCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H;	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{16}N_2O_6 \cdot H_2O$ $C_{12}H_{16}N_2O_6$	
59 60	59 N	$(CH_3)CH(CH_3)CH_2C_4H_5$ ; L- $N(CH_3)CH(CH_3)CH_2C_4H_5$ ; D-	84 M 82 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$	
61 62	61 H	INCH(CH <sub>4</sub> )CH <sub>2</sub> CH <sub>2</sub> C <sub>6</sub> H. INCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H.	95 AC 68 M	190–196 MW 180–184 M-W	+16 H +11 H	$C_{14}H_{20}N_4O_5$ $C_{17}H_{18}N_7O_5$	5 10
63	63 H	INCH <sub>2</sub> CH <sub>2</sub> OC <sub>4</sub> H <sub>2</sub> INCH <sub>2</sub> CH <sub>2</sub> OC <sub>4</sub> H <sub>2</sub> INCH(CH <sub>2</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>3</sub> (OCH <sub>2</sub> O)-3,4	85 AC 95 M	180-194 M-W 184-185 W 189-192	- 13 H +6 M	$C_{12}H_{16}N_2O_4$ $C_{12}H_{16}N_2O_5$	÷
65	65 H	INCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> : 1	95 AC	237-238 W	-26 AC	$C_{13}H_{18}N_2O_4$ $C_{13}H_{18}N_2O_4 = 0.5H_2O$	t
66 67	67 H	INCH(CH <sub>4</sub> )CH(OH)C <sub>8</sub> H <sub>5</sub> INCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{13}\Pi_{15}N_2O_4$	+
68 69	69 H	INCH2CH2C4H4OH-4 INCH(CH2OH)CH2C4H4OH-4; L-	72 AC 44 M	209-210 W 212-213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{16}H_{18}N_2O_5$	+++
70		INCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1 INCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> F-4	96 M 87 M	199–208 W 203–209 M~ET	+14 H +9 H	$C_{14}H_{21}N_3O_5S$ $C_{13}H_{17}FN_2O_3$	20
72	72 H	INCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> F-4	74 M	208-209 W	-6 M	$\mathrm{C}_{12}\mathrm{H}_{13}\mathrm{FN}_{2}\mathrm{O}_{3}$	5
73	73 н	INCH(CH_)CH	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_{2}O_{4} \cdot 0.333H_{2}O$	10
74	74 н	INCH,CH, -	71 M	195-196 M	-17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	-÷-
75	75	NCHICHUCH	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	76 H	INCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$C_{13}H_{23}N_2O_3$	50
77		$INCH(CH_8)CH_2$ - $c$ - $C_6H_{11}$ ; D- $INCH_2CH_2$ - $c$ - $C_8H_{11}$	60 M 94 AC	207–208 M–W 193–202 M–W	$^{+16}_{+7 AC}$	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79		$(CH_4)CH(CH_4)CH_{2'}c$ - $C_6H_{11}$ ; t- $(CH_4)CH(CH_4)CH_{2'}c$ - $C_6H_{11}$ ; n-	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	$C_{14}H_{26}N_2O_4 \cdot 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_2$	
81 82	81 H	IN-r-C4Ha INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224-225 W 190-194 A W	+16 H +9 AC	C <sub>10</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub> C <sub>5</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub> -0,5H <sub>2</sub> O	 U
\$3	83 H	$IN(CH_2)_3CH(CH_4)CH_3$	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85		INCH(CH <sub>3</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 1 INCH(CH <sub>3</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 0-	91 AC 92 AC	166–168 W 201–202 W	-17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	-
86 87		INCH(C <sub>2</sub> H <sub>3</sub> )CH <sub>2</sub> CH <sub>3</sub> CH <sub>3</sub> IN(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	93 M 88 M	196~200 AW 200-201 W	+12 AC +9 AC	$C_{10}H_{20}N_2O_3$ , $H_2O$ $C_{10}H_{20}N_2O_3$ , $0, 25H_2O$	
89	ss H	INCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	98 M	[88]-193 AW	$\pm 11$ AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$	30 +
90	90 H	IN(CH <sub>2</sub> ) <sub>6</sub> CH <sub>3</sub> INCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	89 M 95 M	200-201 W 190-194	+8 AC +7 AC	C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>4</sub> -0, 25H <sub>2</sub> O C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>3</sub>	20
91 92	92 H	INCH(CH <sub>3</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>3</sub> INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>5</sub>	94 M 94 M	162–166 W 181–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	+ 50
93 94		$INCH(C_4H_4)(CH_2)_3CH_4$ $INCH(CH_3)(CH_2)_4CH_4;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_0 H_{22} N_2 O_5 \cdot 0.5 H_2 O \\ C_0 H_{22} N_2 O_5 \cdot H_2 O$	+ 50
95	95 H	$INCH(CH_3)(CH_2)_4CH_3; L^d$ $INCH(CH_3)(CH_2)_4CH_4; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 \cdot 0.5H_2O_5O_5H_2O_5$	
97	97 H	$INCH(CH_3)(CH_2)_4CH_3; D^4$	97 M	189192 W	+6 M	$C_{11}H_{22}N_2O_3$	100
98 99	99 H	INCH(CH <sub>2</sub> )CH <sub>2</sub> CH <sub>2</sub> CH(CH <sub>2</sub> )CH <sub>3</sub> ; I INCH(CH <sub>5</sub> )CH <sub>2</sub> CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>5</sub> ; $1/^d$	84 M 99 M	187-190 W 215-216 M-W	+23 H +2 M	$C_{11}H_{22}N_2O_3 \cdot 0.5H_2O_3$ $C_{11}H_{22}N_2O_3$	0
100	н н	$INCH(CH_3)CH_2CH_2CH(CH_4)CH_3; D-INCH(CH_3)CH_2CH_2CH(CH_5)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	- 3 M - 26 H	$C_{11}H_{22}N_2O_5 \cdot 0.5H_2O \\ C_{11}H_{22}N_2O_8 \cdot 0.25H_2O$	-+
102 103	02 H	INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> INCH(CH <sub>2</sub> )(CH <sub>2</sub> ):CH <sub>3</sub>	77 M 85 M	166~170 M-ET 180~190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_4O$ $C_{12}H_{21}N_2O_3 \cdot 0.5H_4O$	10- 10-
4 Se	See Tabl	le I for abbreviations and explanations. was derived from p-Asp. * All compound	<sup>b</sup> The amie	le was derived from			i m-Asp.
pla	lace	tch (2016) "Locor conditioning effe nacology, Vol 27 (	cts of	MDAI i		,	
(M. ma M sti ps tes sul tra int	ADA ethy IDA imu sych sted abse aine	abstract: "5,6-M AI) has become a ylenedioxymethan AI is known to pro- nus effects, but it nostimulant or hall for locomotor sti equently for discrim- ted to discriminate peritoneally), meth- peritoneally) +MI	comr nphet oduc is no ucino mula ninat cocai	non subs camine (M e <b>MDM</b> t known ogen-like nt effects ive stimu ne (10 m hetamine	titute MDM <b>A-like</b> whetl e effec s in m alus e ag/kg, e (1 m	for (±)-3,4- A) in Ecstas e <b>discrimina</b> her MDAI h ets. MDAI v ice and ffects in rats g/kg,	sy. ative las vas
int	trap	peritoneally), ±MI )-2,5-dimethoxy-4	ЭMÂ	(1.5 mg/	kg, in	traperitonea	• •

	(0.5 mg/kg, intraperitoneally) from salineMDAI fully substituted for the discriminative stimulus effects of MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine (7.5 mg/kg), but produced only 73% methamphetamine- appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity and drug discrimination were similar to those produced by MDMA, having both psychostimulant-like and hallucinogen-like effects; thus, MDAI may have similar abuse potential as MDMA. 5. Nichols (1986) "Synthesis and Evaluation of 2,3- Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5- Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304. From page 304, paragraph 2: "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5- (methylenedioxy)amphetamine (8; MMDA-2) is active $H_3C \downarrow NH_2$ $0 \downarrow \downarrow \downarrow 0 \downarrow 0 \Box H_3$ and produces clear central effects at an oral dosage of 25 mg of the hydrochloride"
9. A pharmaceutical composition comprising at least one compound of claim 1 and one or more pharmaceutically acceptable excipients.	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020): From claim 1: "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I: $ext{if } r_{R_4}$ $r_{R_1}$ $r_{R_4}$ $r_{R_1}$ $r_{R_1}$ $r_{R_4}$ $r_{R_1}$ $r_{R_4}$ $r_{R_1}$ $r_{R_4}$ $r_{R_1}$ $r_{R_1}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_3}$ $r_{R_1}$ $r_{R_3}$ $r_{R_1}$ $r_{R_3}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_3}$ $r_{R_1}$ $r_{R_3}$ $r_{R_1}$ $r_{R_3}$ $r_{R_1}$ $r_{R_1}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_1}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_1}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_1}$ $r_{R_2}$ $r_{R_1}$ $r_{R_1}$ $r_{R_2}$ $r_{R_2}$ $r_{R_1}$ $r_{R_2}$ $r_{R_1}$ $r_{R_2}$ $r_{R_2}$ $r_{R_1}$ $r_{R_2}$ $r_{R_$

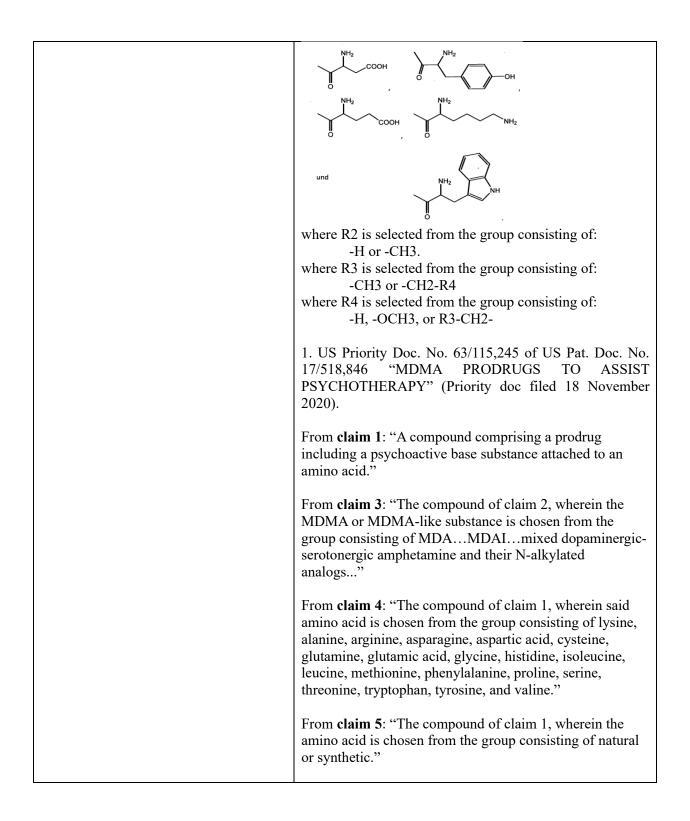


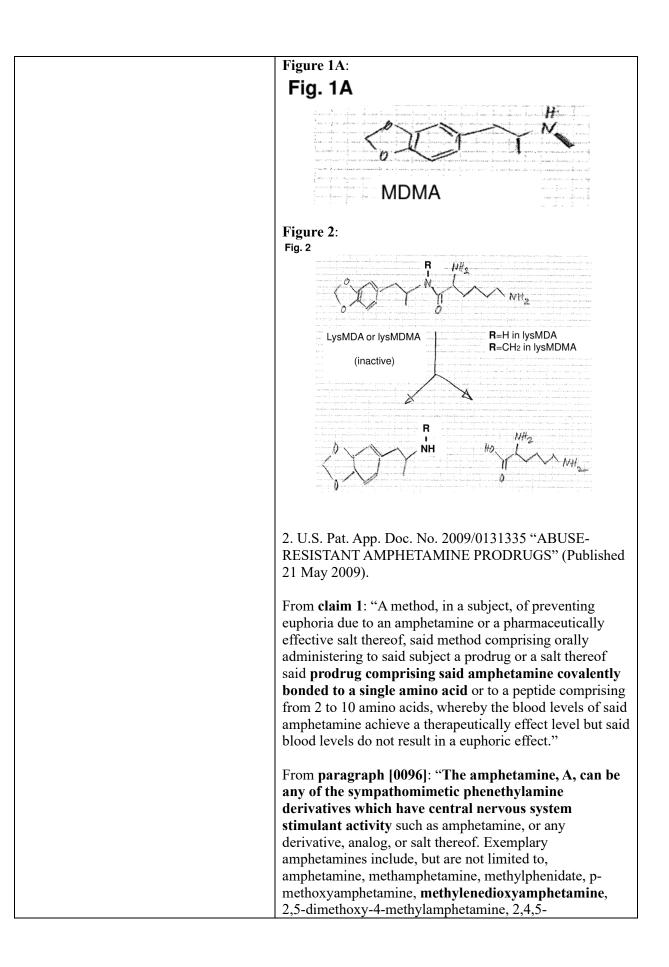


trimethoxyamphetamine, and <b>3,4-</b> <b>methylenedioxymethamphetamine</b> "
<ul> <li>From paragraph [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), aspartic acid (Asp or D), cysteine (Cys or C), glycine (Gly or G), glutamic acid (Glu or E), glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and valine (Val or V). In a preferred embodiment, the peptide comprises only naturally occurring amino acids and/or only L-amino acids. Each amino acids, such as aminohexanoic acid, biphenylalanine, cyclohexylglycine, diethylglycine, dipropylglycine, 2,3-diaminoproprionic acid, homophenylalanine, norleucine, ornithine, phenylalanine (4-fluoro), phenylalanine(2,3,4,5,6-pentafluoro), phenylalanine(4-nitro), phenylglycine, 3-carboxylic acid, and tert-leucine. Preferably, synthetic amino acids with alkyl side chains are selected from C1-C17 alkyls, preferably C1-C6 alkyls. In one embodiment, the peptide comprises one or more amino acid alcohols, e.g., serine and threonine. In another embodiment, the peptide comprises one or more N-methyl amino acids, e.g., N-methyl aspartic acid."</li> <li>3. MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.</li> </ul>

Ta	able	e 2 (entry 64):					
				are II			
No	ίο.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula'	Taste
50 51		$INCH(CH_3)CH_2C_6H_5;$ 1 $INCH(CH_3)CH_2C_6H_5;$ 12-	88 AC 98 AC	197–198 W 222-225 E ·W	- 12 M + 14 W	$C_{13}H_{18}N_2O_3$ $C_{13}H_{18}N_2O_3$	50
52 53		INCH(CH <sub>2</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> INCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+34 M -15 W	$C_{14}H_{26}N_2O_3$ $C_{12}H_{16}N_2O_3$	-
54 55	54 H	INCH(C <sub>2</sub> H <sub>5</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> INC(CH <sub>5</sub> ) <sub>2</sub> CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub>	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{20}N_2O_4 \cdot 0$ , 25H <sub>2</sub> O $C_{14}H_{20}N_2O_5$	3 20
56		INCHCH.	91 M	223-224 M-W	6 II	CuHuS <sub>2</sub> O <sub>2</sub>	10
		CH:					
57		INCHCHC <sub>6</sub> H <sub>3</sub> ; t- INCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H;	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{16}N_2O_6 \cdot H_2O$ $C_{12}H_{16}N_2O_6$	
59 60	59 N	$(CH_3)CH(CH_3)CH_2C_4H_5$ ; L- $N(CH_3)CH(CH_3)CH_2C_4H_5$ ; D-	84 M 82 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$	
61 62	61 H	INCH(CH <sub>4</sub> )CH <sub>2</sub> CH <sub>2</sub> C <sub>6</sub> H. INCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H.	95 AC 68 M	190–196 MW 180–184 M-W	+16 H +11 H	$C_{14}H_{20}N_4O_5$ $C_{17}H_{18}N_7O_5$	5 10
63	63 H	INCH <sub>2</sub> CH <sub>2</sub> OC <sub>4</sub> H <sub>2</sub> INCH <sub>2</sub> CH <sub>2</sub> OC <sub>4</sub> H <sub>2</sub> INCH(CH <sub>2</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>3</sub> (OCH <sub>2</sub> O)-3,4	85 AC 95 M	180-194 M-W 184-185 W 189-192	- 13 H +6 M	$C_{12}H_{16}N_2O_4$ $C_{12}H_{16}N_2O_5$	÷
65	65 H	INCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> : 1	95 AC	237-238 W	-26 AC	$C_{13}H_{18}N_2O_4$ $C_{13}H_{18}N_2O_4 = 0.5H_2O$	t
66 67	67 H	INCH(CH <sub>4</sub> )CH(OH)C <sub>8</sub> H <sub>5</sub> INCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{13}\Pi_{15}N_2O_4$	+
68 69	69 H	INCH2CH2C4H4OH-4 INCH(CH2OH)CH2C4H4OH-4; L-	72 AC 44 M	209-210 W 212-213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{16}H_{18}N_2O_5$	+++
70		INCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1 INCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> F-4	96 M 87 M	199–208 W 203–209 M~ET	+14 H +9 H	$C_{14}H_{21}N_3O_5S$ $C_{13}H_{17}FN_2O_3$	20
72	72 H	INCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> F-4	74 M	208-209 W	-6 M	$\mathrm{C}_{12}\mathrm{H}_{13}\mathrm{FN}_{2}\mathrm{O}_{3}$	5
73	73 н	INCH(CH_)CH	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_{2}O_{4} \cdot 0.333H_{2}O$	10
74	74 н	INCH,CH, -	71 M	195-196 M	-17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_2\mathrm{O}_1$	-÷-
75	75	NCHICHUCH	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	76 H	INCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$C_{\pi s}H_{2s}N_{2}O_{s}$	50
77		$INCH(CH_8)CH_2$ - $c$ - $C_6H_{11}$ ; D- $INCH_2CH_2$ - $c$ - $C_8H_{11}$	60 M 94 AC	207–208 M–W 193–202 M–W	$^{+16}_{+7 AC}$	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79		$(CH_4)CH(CH_4)CH_{2'}c$ - $C_6H_{11}$ ; t- $(CH_3)CH(CH_4)CH_{2'}c$ - $C_6H_{11}$ ; n-	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	$C_{14}H_{26}N_2O_4 \cdot 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_2$	
81 82	81 H	IN-r-C4Ha INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224-225 W 190-194 A W	+16 H +9 AC	C <sub>10</sub> H <sub>18</sub> N <sub>2</sub> O <sub>3</sub> C <sub>5</sub> H <sub>15</sub> N <sub>2</sub> O <sub>3</sub> -0,5H <sub>2</sub> O	 U
\$3	83 H	$IN(CH_2)_3CH(CH_4)CH_3$	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85		INCH(CH <sub>3</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 1 INCH(CH <sub>3</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>3</sub> : 0-	91 AC 92 AC	166–168 W 201–202 W	-17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	-
86 87		INCH(C <sub>2</sub> H <sub>3</sub> )CH <sub>2</sub> CH <sub>3</sub> CH <sub>3</sub> IN(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	93 M 88 M	196~200 AW 200-201 W	+12 AC +9 AC	$C_{10}H_{20}N_2O_3$ , $H_2O$ $C_{10}H_{20}N_2O_3$ , $0, 25H_2O$	
89	ss H	INCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	98 M	[88]-193 AW	$\pm 11$ AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$	30 +
90	90 H	IN(CH <sub>2</sub> ) <sub>6</sub> CH <sub>3</sub> INCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	89 M 95 M	200-201 W 190-194	+8 AC +7 AC	C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>4</sub> -0, 25H <sub>2</sub> O C <sub>11</sub> H <sub>22</sub> N <sub>2</sub> O <sub>3</sub>	20
91 92	92 H	INCH(CH <sub>3</sub> )CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>3</sub> INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>5</sub>	94 M 94 M	162–166 W 181–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	+ 50
93 94		$INCH(C_4H_4)(CH_2)_3CH_4$ $INCH(CH_3)(CH_2)_4CH_4;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_0 H_{22} N_2 O_5 \cdot 0.5 H_2 O \\ C_0 H_{22} N_2 O_5 \cdot H_2 O$	+ 50
95	95 H	$INCH(CH_3)(CH_2)_4CH_3; L^d$ $INCH(CH_3)(CH_2)_4CH_4; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 \cdot 0.5H_2O_5O_5H_2O_5$	
97	97 H	$INCH(CH_3)(CH_2)_4CH_3; D^4$	97 M	189192 W	+6 M	$C_{11}H_{22}N_2O_3$	100
98 99	99 H	INCH(CH <sub>2</sub> )CH <sub>2</sub> CH <sub>2</sub> CH(CH <sub>2</sub> )CH <sub>3</sub> ; I INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH(CH <sub>3</sub> )CH <sub>5</sub> ; $1/^d$	84 M 99 M	187-190 W 215-216 M-W	+23 H +2 M	$C_{11}H_{22}N_2O_3 \cdot 0.5H_2O_3$ $C_{11}H_{22}N_2O_3$	0
100	н н	$INCH(CH_3)CH_2CH_2CH(CH_4)CH_3; D-INCH(CH_3)CH_2CH_2CH(CH_5)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	- 3 M - 26 H	$C_{11}H_{22}N_2O_5 \cdot 0.5H_2O \\ C_{11}H_{22}N_2O_8 \cdot 0.25H_2O$	-+
102 103	02 H	INCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> INCH(CH <sub>2</sub> )(CH <sub>2</sub> ):CH <sub>3</sub>	77 M 85 M	166~170 M-ET 180~190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_4O$ $C_{12}H_{21}N_2O_3 \cdot 0.5H_4O$	10- 10-
4 Se	See Tabl	le I for abbreviations and explanations. was derived from p-Asp. * All compound	<sup>b</sup> The amie	le was derived from			i m-Asp.
pla	lace	tch (2016) "Locor conditioning effe nacology, Vol 27 (	cts of	MDAI i		,	
(M. ma M sti ps tes sul tra int	ADA ethy IDA imu sych sted abse aine	abstract: "5,6-M AI) has become a ylenedioxymethan AI is known to pro- nus effects, but it nostimulant or hall for locomotor sti equently for discrim- ted to discriminate peritoneally), meth- peritoneally) +MI	comr nphet oduc is no ucino mula ninat cocai	non subs camine (M e <b>MDM</b> t known ogen-like nt effects ive stimu ne (10 m hetamine	titute MDM <b>A-like</b> whetl e effec s in m alus e ag/kg, e (1 m	for (±)-3,4- A) in Ecstas e <b>discrimina</b> her MDAI h ets. MDAI v ice and ffects in rats g/kg,	sy. ative las vas
int	trap	peritoneally), ±MI )-2,5-dimethoxy-4	ЭMÂ	(1.5 mg/	kg, in	traperitonea	• •

(7.5 mg/kg), but produced only 73% methamphetamine- appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity and drug discrimination were similar to those produced by MDMA, having both psychostimulant-like and hallucinogen-like effects; thus, MDAI may have similar abuse potential as MDMA. 5. Nichols (1986) "Synthesis and Evaluation of 2,3- Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5- Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304. From page 304, paragraph 2: "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5- (methylenedioxy)amphetamine (8; MMDA-2) is active $H_{3}C \downarrow NH_{2}$
From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020): From claim 1: "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I: $r_{R_4}$ (Formel I) where R1 is selected from the group consisting of:



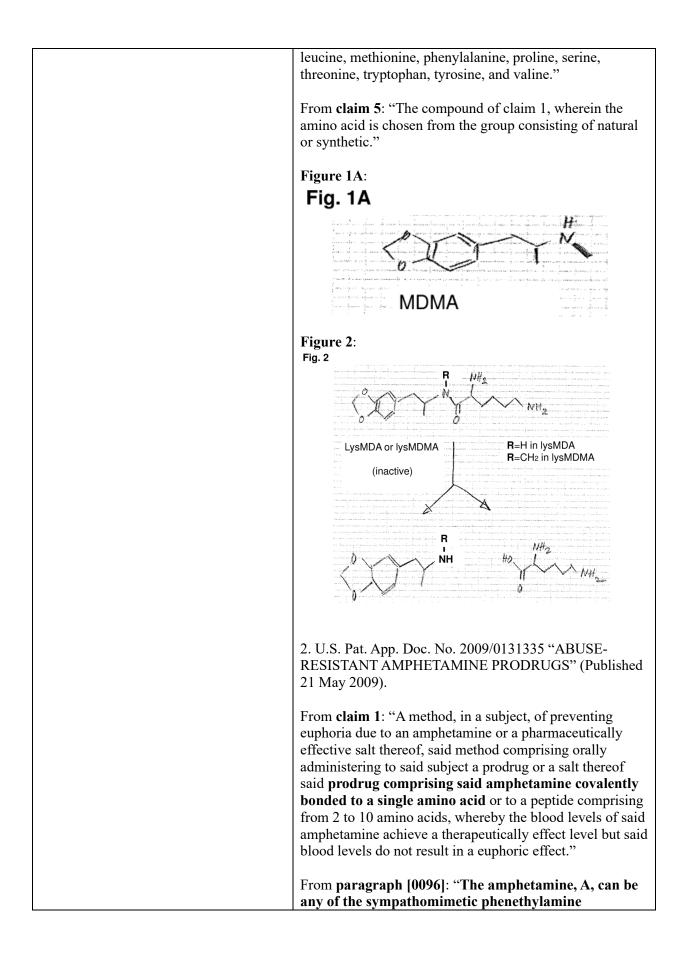


trimethoxyamphetamine, and <b>3,4-</b> methylenedioxymethamphetamine"
<ul> <li>From paragraph [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), aspartic acid (Asp or D), cysteine (Cys or C), glycine (Gly or G), glutamic acid (Glu or E), glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and valine (Val or V)"</li> <li>MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.</li> </ul>

 Tab	le 2 (entry 64):					
	,		ars II			
No.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula	Taste
50 51	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; L- HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; D-	88 AC 98 AC	197–198 W 222–225 E. W	- 12 M + 14 W	$C_{13}H_{15}N_2O_3$ $C_{13}H_{16}N_2O_3$	50 0
52 53	HNCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+ 34 M - 15 W	$C_{14}H_{20}N_4O_3$ $C_{12}H_{16}N_4O_3$	-
54 55	$HNCH(C_2H_3)CH_2C_6H_3$ $HNC(CH_3)_2CH_2C_6H_3$	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{26}N_2O_3 + 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_3$	5 20
56		91 M	223-224 M-W	-6 II	$C_{11}H_{16}N_2O_2$	10
	CH:			0.11	< 111111-120-1	
57 58	HNCHCHC <sub>6</sub> H <sub>3</sub> ; t- HNCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H,	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{18}N_2O_8 \cdot H_2O$ $C_{12}H_{18}N_2O_4$	
59 60	N(CH <sub>2</sub> )CH(CH <sub>8</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; 1	84 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$	
61	$N(CH_3)CH(CH_3)CH_2C_6H_3$ ; D- HNCH(CH_3)CH_2CH_2C_6H_3	82 M 95 AC	190-196 MW	+16 H	$C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_3$	5
62 63	HNCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub> HNCH <sub>2</sub> CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub>	68 M 85 AC	180~184 M=W 184-185 W	+11 H -13 H	C <sub>12</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> C <sub>12</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	10 ÷
64 65	$HNCH(CH_3)CH_2C_4H_3(OCH_2O)-3_74$ $HNCH(CH_2OH)CH_2C_4H_5;$ 1	95 M 95 AC	189–192 237–238 W	+6 M -26 AC	$C_{14}H_{18}N_2O_5$ $C_{13}H_{18}N_2O_4$	
66 67	HNCH(CH <sub>3</sub> )CH(OH)C <sub>8</sub> H; HNCH(CH <sub>3</sub> )CH <sub>7</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{11}H_1 N_2O_4 \cdot 0.5 H_2O_1 C_{10}H_1 N_2O_4$	+
68 69	HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> OH-4 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>8</sub> H <sub>4</sub> OH-4; 1	72 AC 44 M	209~210 W 212~213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{18}H_{18}N_2O_4$	+
70	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1	96 M	199-208 W	+14.11	$C_{14}H_{41}N_8O_5S$	
71 72	$HNCH(CH_3)CH_2C_6H_4F-4$ $HNCH_2CH_2C_4H_4F-4$	87 M 74 M	203-209 M-ET 208-209 W	+9 H −6 M	$C_{12}H_{17}FN_2O_3$ $C_{12}H_{15}FN_2O_3$	20 5
73	HNCH(CH.)CH2	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_2O_4{\cdot}0.333H_2O$	10
74	HNCH,CH, L	71 M	195-196 M	- 17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	+
75	HNCH/CH_/CH_	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	HNCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$\mathrm{C}_{13}\mathrm{H}_{13}\mathrm{N}_{2}\mathrm{O}_{3}$	50
77 78	$HNCH(CH_0)CH_{2*}c_*C_6H_{11}; D=$ $HNCH_2CH_{2*}c_*C_8H_{11}$	60 M 94 AC	207-208 M-W 193-202 M-W	$^{+16}_{+7}$ M +7 AC	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79 80	$N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1 $N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	CuH28N2O1+0.25H2O CuH28N2O2	
81 82	HN-e-C <sub>6</sub> H <sub>11</sub> HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224–225 W 190–194 A W	+16 H +9 AC	$C_{10}H_{18}N_2O_3$ $C_5H_{18}N_2O_4 \cdot 0.5H_2O$	 0
83	HN(CH <sub>2</sub> ) <sub>3</sub> CH(CH <sub>4</sub> )CH <sub>3</sub>	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85	$HNCH(CH_3)CH_2CH(CH_3)CH_3; 1_{*}$ $HNCH(CH_3)CH_2CH(CH_3)CH_3; 0_{*}$	91 AC 92 AC	166–168 W 201–202 W	−17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	
86 87	$HNCH(C_2H_3)CH_2CH_2CH_3$ $HN(CH_2)_3CH_3$	93 M 88 M	196-200 AW 200-201 W	+12 AC +9 AC	C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , 0, 25H <sub>2</sub> O	
88 89	HNCH(CH <sub>4</sub> ) <sub>4</sub> CH <sub>4</sub> HN(CH <sub>4</sub> ) <sub>6</sub> CH <sub>4</sub>	98 M 89 M	188 -193 A -W 200-201 W	+11 AC +8 AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.25H_2O$	30 +
90 91	HNCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	95 M	190~194	$\pm 7$ AC	$C_{11}H_{22}N_2O_3$	20 +
92	$HNCH(CH_3)CH_2CH(CH_3)CH_2CH_2$ $HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3$	94 M 94 M	162–166 W 184–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	50
93 94	$HNCH(C_2H_5)(CH_2)_3CH_3$ $HNCH(CH_3)(CH_2)_4CH_3;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_{11}H_{22}N_2O_3 \cdot 0$ , 5H <sub>2</sub> O $C_{12}H_{22}N_2O_3$ , H <sub>2</sub> O	4: 50
95 96	$HNCH(CH_3)(CH_2)_4CH_3; L^d$ $HNCH(CH_3)(CH_2)_4CH_3; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 + 05H_2O_3$ $C_{11}H_{22}N_2O_3$	
97 98	$HNCH(CH_3)(CH_2)_4CH_3; D^d$ $HNCH(CH_2)CH_2CH_2CH(CH_2)CH_3; L-$	97 M 84 M	189–192 W 187–190 W	$^{+6}_{+23}$ H	$C_{15}H_{22}N_2O_3$ $C_{13}H_{22}N_2O_3 + 0.5H_2O$	100
99 100	$HNCH(CH_8)CH_2CH_2CH(CH_8)CH_8; \ L^d$	99 M	215-216 M-W	+2 M -3 M	$C_1$ ; $H_2$ ; $N_2$ O <sub>3</sub>	0
101	$HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D-HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	-26 H	$C_{11}H_{12}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{12}N_2O_3 \cdot 0.25H_2O$	+
102 103	HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> HNCH(CH <sub>2</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	77 M 85 M	166-170 M-ET 180-190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_2O \\ C_{12}H_{21}N_2O_3 \cdot 0.5H_2O$	10 10
<sup>4</sup> See T <sup>4</sup> The ami	able I for abbreviations and explanations. de was derived from p-Asp. * All compound	<sup>b</sup> The amies were analy	de was derived from zed for C, H, N.	i t-Glu. ≃Tl	he amide was deri <b>ve</b> d from	ntsAsp.
plac	atch (2016) "Locor e conditioning effer macology, Vol 27 (	cts of	f MDAI i		,	
From <b>abstract</b> : "5,6-Methylenedioxy-2-aminoindane (MDAI) has become a common substitute for $(\pm)$ -3,4- methylenedioxymethamphetamine (MDMA) in Ecstasy. <b>MDAI is known to produce MDMA-like discriminative</b> <b>stimulus effects</b> , but it is not known whether MDAI has psychostimulant or hallucinogen-like effects. MDAI was tested for locomotor stimulant effects in mice and subsequently for discriminative stimulus effects in rats trained to discriminate cocaine (10 mg/kg, intraperitoneally), methamphetamine (1 mg/kg, intraperitoneally),						
	peritoneally), ±MI -)-2,5-dimethoxy-4		· –	-	-	• /

(0.5 mg/kg, intraperitoneally) from salineMDAI fully
substituted for the discriminative stimulus effects of $MDMA(25mg/lpg)()$ 2.5 dimetherms 4
MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine
(7.5 mg/kg), but produced only 73% methamphetamine-
appropriate responding at a dose that suppressed
responding (7.5 mg/kg). MDAI produced tremors at
10 mg/kg in one methamphetamine-trained rat. MDAI
produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity
and drug discrimination were similar to those
produced by MDMA, having both psychostimulant-like
and hallucinogen-like effects; thus, MDAI may have
similar abuse potential as MDMA.
5. Nichols (1986) "Synthesis and Evaluation of 2,3-
Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5-
Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304.
Discrimination Studies in Rats Vol. 29 (2): 502-504.
From page 304, paragraph 2: "This is all the more
difficult to explain in light of the fact that 2-methoxy-4,5- (methylenedioxy)amphetamine (8; MMDA-2) is active
(incurve control of the second secon
0-1-1-1
O OCH3
8
and produces clear central effects at an oral dosage of 25
mg of the hydrochloride"
6. Bahji (2019) "Efficacy of 3,4-
methylenedioxymethamphetamine (MDMA)-assisted
psychotherapy for posttraumatic stress disorder: A
systematic review and meta-analysis" Progress in Neuropsychopharmacology & Biological Psychiatry, Vol.
96, 109735.
From page 8, conclusions: "We systematically reviewed
and meta-analyzed randomized and quasi-randomized
controlled trials measuring the effectiveness and safety
MDMA-assisted psychotherapy for treating chronic,
treatment-refractory PTSD. We identified five moderate-
quality trials demonstrating that MDMA-assisted psychotherapy was associated with significant
improvements in PTSD symptoms following intervention
that extended long-term with few reported adverse effects.
Taken together, our synthesis suggests that MDMA-
assisted psychotherapy is a potentially safe, effective,

	and durable treatment for individuals with treatment- refractory PTSD."
15. The method of claim 14, wherein said disease/disorder is an anxiety disorder, attention deficit hyperactivity disorder	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020):
(ADHD), posttraumatic stress disorder (PTSD), depression, cluster headache, ca condition associated with cancer,	From <b>claim 1</b> : "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I:
diminished drive, burn-out, bore-out, migraine, Parkinson's disease, pulmonary hypertension, schizophrenia, an eating	
disorder, nausea, or vomiting.	where R1 is selected from the group consisting of:
	und NH2
	where R2 is selected from the group consisting of: -H or -CH3.
	where R3 is selected from the group consisting of: -CH3 or -CH2-R4
	where R4 is selected from the group consisting of: -H, -OCH3, or R3-CH2-
	1. US Priority Doc. No. 63/115,245 of US Pat. Doc. No. 17/518,846 "MDMA PRODRUGS TO ASSIST PSYCHOTHERAPY" (Priority doc filed 18 November 2020).
	From <b>claim 1</b> : "A compound comprising a prodrug including a psychoactive base substance attached to an amino acid."
	From <b>claim 3</b> : "The compound of claim 2, wherein the MDMA or MDMA-like substance is chosen from the group consisting of MDAMDAImixed dopaminergic-serotonergic amphetamine and their N-alkylated analogs"
	From <b>claim 4</b> : "The compound of claim 1, wherein said amino acid is chosen from the group consisting of lysine, alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine,

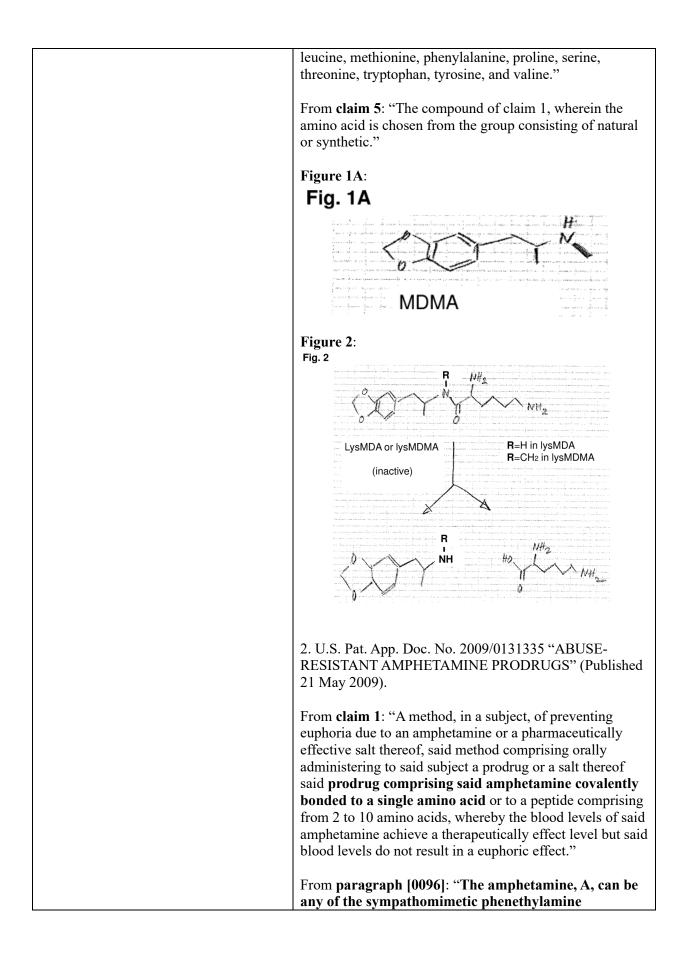


derivatives which have central nervous system
stimulant activity such as amphetamine, or any
derivative, analog, or salt thereof. Exemplary
amphetamines include, but are not limited to,
amphetamine, methamphetamine, methylphenidate, p-
methoxyamphetamine, methylenedioxyamphetamine,
2,5-dimethoxy-4-methylamphetamine, 2,4,5-
trimethoxyamphetamine, and 3,4-
methylenedioxymethamphetamine"
From <b>paragraph [0107]</b> : "Each amino acid can be any
one of the L- or D-enantiomers, preferably L-enantiomers,
of the naturally occurring amino acids: alanine (Ala or A),
arginine (Arg or R), asparagine (Asn or N), aspartic acid
(Asp or D), cysteine (Cys or C), glycine (Gly or G),
glutamic acid (Glu or E), glutamine (Gln or Q), histidine
(His or H), isoleucine (Ile or I), leucine (Leu or L), lysine
(Lys or K), methionine (Met or M), proline (Pro or P),
phenylalanine (Phe or F), serine (Ser or S), tryptophan
(Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and
valine (Val or V)"
3. MAZUR (1970) "Structure-taste relation of aspartic acid
amides" J. Med. Chem. Vol 13(6): 1217-1221.

 Tab	le 2 (entry 64):					
	,		ars II			
No.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula	Taste
50 51	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; L- HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; D-	88 AC 98 AC	197–198 W 222–225 E. W	- 12 M + 14 W	$C_{13}H_{15}N_2O_3$ $C_{13}H_{16}N_2O_3$	50 0
52 53	HNCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+ 34 M - 15 W	$C_{14}H_{20}N_4O_3$ $C_{12}H_{16}N_4O_3$	-
54 55	$HNCH(C_2H_3)CH_2C_6H_3$ $HNC(CH_3)_2CH_2C_6H_3$	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{26}N_2O_3 + 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_3$	5 20
56		91 M	223-224 M-W	-6 II	$C_{11}H_{16}N_2O_2$	10
	CH:			0.11	< 111111-120-1	
57 58	HNCHCHC <sub>6</sub> H <sub>3</sub> ; t- HNCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H,	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{18}N_2O_8 \cdot H_2O$ $C_{12}H_{18}N_2O_4$	
59 60	N(CH <sub>2</sub> )CH(CH <sub>8</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; 1	84 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$	
61	$N(CH_3)CH(CH_3)CH_2C_6H_3$ ; D- HNCH(CH_3)CH_2CH_2C_6H_3	82 M 95 AC	190-196 MW	+16 H	$C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_3$	5
62 63	HNCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub> HNCH <sub>2</sub> CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub>	68 M 85 AC	180~184 M=W 184-185 W	+11 H -13 H	C <sub>12</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> C <sub>12</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	10 ÷
64 65	$HNCH(CH_3)CH_2C_4H_3(OCH_2O)-3_14$ $HNCH(CH_2OH)CH_2C_4H_5;$ 1	95 M 95 AC	189–192 237–238 W	+6 M -26 AC	$C_{14}H_{18}N_2O_5$ $C_{13}H_{18}N_2O_4$	
66 67	HNCH(CH <sub>3</sub> )CH(OH)C <sub>8</sub> H; HNCH(CH <sub>3</sub> )CH <sub>7</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{11}H_1 N_2O_4 \cdot 0.5 H_2O_1 C_{10}H_1 N_2O_4$	+
68 69	HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> OH-4 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>8</sub> H <sub>4</sub> OH-4; 1	72 AC 44 M	209~210 W 212~213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{18}H_{18}N_2O_4$	+
70	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1	96 M	199-208 W	+14.11	$C_{14}H_{41}N_8O_5S$	
71 72	$HNCH(CH_3)CH_2C_6H_4F-4$ $HNCH_2CH_2C_4H_4F-4$	87 M 74 M	203-209 M-ET 208-209 W	+9 H −6 M	$C_{12}H_{17}FN_2O_3$ $C_{12}H_{15}FN_2O_3$	20 5
73	HNCH(CH.)CH2	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_2O_4{\cdot}0.333H_2O$	10
74	HNCH,CH, L	71 M	195-196 M	- 17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	+
75	HNCH/CH_/CH_	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	HNCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$C_{13}H_{13}N_2O_3$	50
77 78	$HNCH(CH_0)CH_{2*}c_*C_6H_{11}; D=$ $HNCH_2CH_{2*}c_*C_8H_{11}$	60 M 94 AC	207-208 M-W 193-202 M-W	$^{+16}_{+7}$ M +7 AC	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79 80	$N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1 $N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	CuH28N2O1+0.25H2O CuH28N2O2	
81 82	HN-e-C <sub>6</sub> H <sub>11</sub> HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224–225 W 190–194 A W	+16 H +9 AC	$C_{10}H_{18}N_2O_3$ $C_5H_{18}N_2O_4 \cdot 0.5H_2O$	 0
83	HN(CH <sub>2</sub> ) <sub>3</sub> CH(CH <sub>4</sub> )CH <sub>3</sub>	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85	$HNCH(CH_3)CH_2CH(CH_3)CH_3; 1_{*}$ $HNCH(CH_3)CH_2CH(CH_3)CH_3; 0_{*}$	91 AC 92 AC	166–168 W 201–202 W	−17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	
86 87	$HNCH(C_2H_3)CH_2CH_2CH_3$ $HN(CH_2)_3CH_3$	93 M 88 M	196-200 AW 200-201 W	+12 AC +9 AC	C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , 0, 25H <sub>2</sub> O	
88 89	HNCH(CH <sub>4</sub> ) <sub>4</sub> CH <sub>4</sub> HN(CH <sub>4</sub> ) <sub>6</sub> CH <sub>4</sub>	98 M 89 M	188 -193 A -W 200-201 W	+11 AC +8 AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.25H_2O$	30 +
90 91	HNCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	95 M	190~194	$\pm 7$ AC	$C_{11}H_{22}N_2O_3$	20 +
92	$HNCH(CH_3)CH_2CH(CH_3)CH_2CH_2$ $HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3$	94 M 94 M	162–166 W 184–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	50
93 94	$HNCH(C_2H_5)(CH_2)_3CH_3$ $HNCH(CH_3)(CH_2)_4CH_3;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_{11}H_{22}N_2O_3 \cdot 0$ , 5H <sub>2</sub> O $C_{12}H_{22}N_2O_3$ , H <sub>2</sub> O	4: 50
95 96	$HNCH(CH_3)(CH_2)_4CH_3; L^d$ $HNCH(CH_3)(CH_2)_4CH_3; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 + 05H_2O_3$ $C_{11}H_{22}N_2O_3$	
97 98	$HNCH(CH_3)(CH_2)_4CH_3; D^d$ $HNCH(CH_2)CH_2CH_2CH(CH_2)CH_3; L-$	97 M 84 M	189–192 W 187–190 W	$^{+6}_{+23}$ H	$C_{15}H_{22}N_2O_3$ $C_{13}H_{22}N_2O_3 + 0.5H_2O$	100
99 100	$HNCH(CH_8)CH_2CH_2CH(CH_8)CH_8; \ L^d$	99 M	215-216 M-W	+2 M -3 M	$C_1$ ; $H_2$ ; $N_2$ O <sub>3</sub>	0
101	$HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D-HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	-26 H	$C_{11}H_{12}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{12}N_2O_3 \cdot 0.25H_2O$	+
102 103	HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> HNCH(CH <sub>2</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	77 M 85 M	166-170 M-ET 180-190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_2O \\ C_{12}H_{21}N_2O_3 \cdot 0.5H_2O$	10 10
<sup>4</sup> See T <sup>4</sup> The ami	able I for abbreviations and explanations. de was derived from p-Asp. * All compound	<sup>b</sup> The amies were analy	de was derived from zed for C, H, N.	i t-Glu. ≃Tl	he amide was deri <b>ve</b> d from	ntsAsp.
plac	atch (2016) "Locor e conditioning effer macology, Vol 27 (	cts of	f MDAI i		,	
From <b>abstract</b> : "5,6-Methylenedioxy-2-aminoindane (MDAI) has become a common substitute for $(\pm)$ -3,4- methylenedioxymethamphetamine (MDMA) in Ecstasy. <b>MDAI is known to produce MDMA-like discriminative</b> <b>stimulus effects</b> , but it is not known whether MDAI has psychostimulant or hallucinogen-like effects. MDAI was tested for locomotor stimulant effects in mice and subsequently for discriminative stimulus effects in rats trained to discriminate cocaine (10 mg/kg, intraperitoneally), methamphetamine (1 mg/kg, intraperitoneally),						
	peritoneally), ±MI -)-2,5-dimethoxy-4		· –	-	-	• /

(0.5 mg/kg, intraperitoneally) from salineMDAI fully
substituted for the discriminative stimulus effects of $MDMA(25mg/lpg)()$ 2.5 dimetherms 4
MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine
(7.5 mg/kg), but produced only 73% methamphetamine-
appropriate responding at a dose that suppressed
responding (7.5 mg/kg). MDAI produced tremors at
10 mg/kg in one methamphetamine-trained rat. MDAI
produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity
and drug discrimination were similar to those
produced by MDMA, having both psychostimulant-like
and hallucinogen-like effects; thus, MDAI may have
similar abuse potential as MDMA.
5. Nichols (1986) "Synthesis and Evaluation of 2,3-
Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5-
Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304.
Discrimination Studies in Rats Vol. 29 (2): 502-504.
From page 304, paragraph 2: "This is all the more
difficult to explain in light of the fact that 2-methoxy-4,5- (methylenedioxy)amphetamine (8; MMDA-2) is active
(incurve control of the second secon
0-1-1-1
O OCH3
8
and produces clear central effects at an oral dosage of 25
mg of the hydrochloride"
6. Bahji (2019) "Efficacy of 3,4-
methylenedioxymethamphetamine (MDMA)-assisted
psychotherapy for posttraumatic stress disorder: A
systematic review and meta-analysis" Progress in Neuropsychopharmacology & Biological Psychiatry, Vol.
96, 109735.
From page 8, conclusions: "We systematically reviewed
and meta-analyzed randomized and quasi-randomized
controlled trials measuring the effectiveness and safety
MDMA-assisted psychotherapy for treating chronic,
treatment-refractory PTSD. We identified five moderate-
quality trials demonstrating that MDMA-assisted psychotherapy was associated with significant
improvements in PTSD symptoms following intervention
that extended long-term with few reported adverse effects.
Taken together, our synthesis suggests that MDMA-
assisted psychotherapy is a potentially safe, effective,

	and durable treatment for individuals with treatment- refractory PTSD."
16. A method for the production of a compound according to claim 1, comprising the steps of:	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020):
<ul><li>a. preparing a solution of a protected amino acid in solvent I;</li><li>b. addition of an activating agent</li></ul>	From <b>claim 1</b> : "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I:
<ul><li>dissolved in solvent I under protective</li><li>gas atmosphere;</li><li>c. stirring of the mixture under protective</li></ul>	
gas atmosphere for at least 2 hours at room temperature; e. stirring of the mixture under protective	where R1 is selected from the group consisting of: $\downarrow \downarrow $
gas atmosphere for at least 2 hours at room temperature; f. stopping the reaction by adding 2% ammonia solution;	
g1. Concentration of the solvent I; g2. Dissolving the residue in solvent II; h. extraction with 1M HCl, water and saturated saline solution;	und NH <sub>2</sub> NH
<ul><li>i. drying of the organic phase over a desiccant at 40-60°C and under vacuum;</li><li>j. obtaining the crude product;</li><li>k. purification of the crude product by</li></ul>	where R2 is selected from the group consisting of: -H or -CH3. where R3 is selected from the group consisting of:
recrystallization and/or column chromatography; l. obtaining the protected safrylamine	-CH3 or -CH2-R4 where R4 is selected from the group consisting of: -H, -OCH3, or R3-CH2-
<ul> <li>peptide;</li> <li>m. deprotection of the protected</li> <li>safrylamine peptide;</li> <li>n. purification of the safrylamine peptide</li> <li>by means of column chromatography;</li> <li>o. obtaining the safrylamine peptide</li> </ul>	1. US Priority Doc. No. 63/115,245 of US Pat. Doc. No. 17/518,846 "MDMA PRODRUGS TO ASSIST PSYCHOTHERAPY" (Priority doc filed 18 November 2020).
	From <b>claim 1</b> : "A compound comprising a prodrug including a psychoactive base substance attached to an amino acid."
	From <b>claim 3</b> : "The compound of claim 2, wherein the MDMA or MDMA-like substance is chosen from the group consisting of MDAMDAImixed dopaminergic-serotonergic amphetamine and their N-alkylated analogs"
	From <b>claim 4</b> : "The compound of claim 1, wherein said amino acid is chosen from the group consisting of lysine, alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine,



derivatives which have central nervous system
stimulant activity such as amphetamine, or any
derivative, analog, or salt thereof. Exemplary
amphetamines include, but are not limited to,
amphetamine, methamphetamine, methylphenidate, p-
methoxyamphetamine, methylenedioxyamphetamine,
2,5-dimethoxy-4-methylamphetamine, 2,4,5-
trimethoxyamphetamine, and 3,4-
methylenedioxymethamphetamine"
From <b>paragraph [0107]</b> : "Each amino acid can be any
one of the L- or D-enantiomers, preferably L-enantiomers,
of the naturally occurring amino acids: alanine (Ala or A),
arginine (Arg or R), asparagine (Asn or N), aspartic acid
(Asp or D), cysteine (Cys or C), glycine (Gly or G),
glutamic acid (Glu or E), glutamine (Gln or Q), histidine
(His or H), isoleucine (Ile or I), leucine (Leu or L), lysine
(Lys or K), methionine (Met or M), proline (Pro or P),
phenylalanine (Phe or F), serine (Ser or S), tryptophan
(Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and
valine (Val or V)"
3. MAZUR (1970) "Structure-taste relation of aspartic acid
amides" J. Med. Chem. Vol 13(6): 1217-1221.

 Tab	le 2 (entry 64):					
	,		ars II			
No.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula	Taste
50 51	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; L- HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; D-	88 AC 98 AC	197–198 W 222-225 EW	- 12 M + 14 W	$C_{13}H_{15}N_2O_3$ $C_{13}H_{16}N_2O_3$	50 0
52 53	HNCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+ 34 M - 15 W	$C_{14}H_{20}N_4O_3$ $C_{12}H_{16}N_4O_3$	-
54 55	$HNCH(C_2H_3)CH_2C_6H_3$ $HNC(CH_3)_2CH_2C_6H_3$	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{26}N_2O_3 + 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_3$	5 20
56		91 M	223-224 M-W	-6 II	$C_{11}H_{16}N_2O_2$	10
	CH:			0.11	< 111111-120-1	
57 58	HNCHCHC <sub>6</sub> H <sub>3</sub> ; t- HNCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H,	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{18}N_2O_8 \cdot H_2O$ $C_{12}H_{18}N_2O_4$	
59 60	N(CH <sub>2</sub> )CH(CH <sub>8</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; 1	84 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$	
61	$N(CH_3)CH(CH_3)CH_2C_6H_3$ ; D- HNCH(CH_3)CH_2CH_2C_6H_3	82 M 95 AC	190-196 MW	+16 H	$C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_3$	5
62 63	HNCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub> HNCH <sub>2</sub> CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub>	68 M 85 AC	180~184 M=W 184-185 W	+11 H -13 H	C <sub>12</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> C <sub>12</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	10 ÷
64 65	$HNCH(CH_3)CH_2C_4H_3(OCH_2O)-3_14$ $HNCH(CH_2OH)CH_2C_4H_5;$ 1	95 M 95 AC	189–192 237–238 W	+6 M -26 AC	$C_{14}H_{18}N_2O_5$ $C_{13}H_{18}N_2O_4$	
66 67	HNCH(CH <sub>3</sub> )CH(OH)C <sub>8</sub> H; HNCH(CH <sub>3</sub> )CH <sub>7</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{11}H_1 N_2 O_4 \cdot 0.5 H_2 O_1 C_{10}H_1 N_2 O_4$	+
68 69	HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> OH-4 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>8</sub> H <sub>4</sub> OH-4; 1	72 AC 44 M	209~210 W 212~213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{18}H_{18}N_2O_4$	+
70	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1	96 M	199-208 W	+14.11	$C_{14}H_{41}N_8O_5S$	
71 72	$HNCH(CH_3)CH_2C_6H_4F-4$ $HNCH_2CH_2C_4H_4F-4$	87 M 74 M	203-209 M-ET 208-209 W	+9 H −6 M	$C_{12}H_{17}FN_2O_3$ $C_{12}H_{15}FN_2O_3$	20 5
73	HNCH(CH.)CH2	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_2O_4{\cdot}0.333H_2O$	10
74	HNCH,CH, L	71 M	195-196 M	- 17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	+
75	HNCH/CH_/CH_	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	HNCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$C_{13}H_{13}N_2O_3$	50
77 78	$HNCH(CH_0)CH_{2*}c_*C_6H_{11}; D=$ $HNCH_2CH_{2*}c_*C_8H_{11}$	60 M 94 AC	207-208 M-W 193-202 M-W	$^{+16}_{+7}$ M +7 AC	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79 80	$N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1 $N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	CuH28N2O1+0.25H2O CuH28N2O2	
81 82	HN-e-C <sub>6</sub> H <sub>11</sub> HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224–225 W 190–194 A W	+16 H +9 AC	$C_{10}H_{18}N_2O_3$ $C_5H_{18}N_2O_4 \cdot 0.5H_2O$	 0
83	HN(CH <sub>2</sub> ) <sub>3</sub> CH(CH <sub>4</sub> )CH <sub>3</sub>	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85	$HNCH(CH_3)CH_2CH(CH_3)CH_3; 1_{*}$ $HNCH(CH_3)CH_2CH(CH_3)CH_3; 0_{*}$	91 AC 92 AC	166–168 W 201–202 W	−17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	
86 87	$HNCH(C_2H_3)CH_2CH_2CH_3$ $HN(CH_2)_3CH_3$	93 M 88 M	196-200 AW 200-201 W	+12 AC +9 AC	C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , 0, 25H <sub>2</sub> O	
88 89	HNCH(CH <sub>4</sub> ) <sub>4</sub> CH <sub>4</sub> HN(CH <sub>4</sub> ) <sub>6</sub> CH <sub>4</sub>	98 M 89 M	188 -193 A -W 200-201 W	+11 AC +8 AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.25H_2O$	30 +
90 91	HNCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	95 M	190~194	$\pm 7$ AC	$C_{11}H_{22}N_2O_3$	20 +
92	$HNCH(CH_3)CH_2CH(CH_3)CH_2CH_2$ $HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3$	94 M 94 M	162–166 W 184–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	50
93 94	$HNCH(C_2H_5)(CH_2)_3CH_3$ $HNCH(CH_3)(CH_2)_4CH_3;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_{11}H_{22}N_2O_3 \cdot 0$ , 5H <sub>2</sub> O $C_{12}H_{22}N_2O_3$ , H <sub>2</sub> O	4: 50
95 96	$HNCH(CH_3)(CH_2)_4CH_3; L^d$ $HNCH(CH_3)(CH_2)_4CH_3; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 + 05H_2O_3$ $C_{11}H_{22}N_2O_3$	
97 98	$HNCH(CH_3)(CH_2)_4CH_3; D^d$ $HNCH(CH_2)CH_2CH_2CH(CH_2)CH_3; L-$	97 M 84 M	189–192 W 187–190 W	$^{+6}_{+23}$ H	$C_{15}H_{22}N_2O_3$ $C_{13}H_{22}N_2O_3 + 0.5H_2O$	100
99 100	$HNCH(CH_8)CH_2CH_2CH(CH_8)CH_8; \ L^d$	99 M	215-216 M-W	+2 M -3 M	$C_1$ ; $H_2$ ; $N_2$ O <sub>3</sub>	0
101	$HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D-HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	-26 H	$C_{11}H_{12}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{12}N_2O_3 \cdot 0.25H_2O$	+
102 103	HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> HNCH(CH <sub>2</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	77 M 85 M	166-170 M-ET 180-190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_2O \\ C_{12}H_{21}N_2O_3 \cdot 0.5H_2O$	10 10
<sup>4</sup> See T <sup>4</sup> The ami	able I for abbreviations and explanations. de was derived from p-Asp. * All compound	<sup>b</sup> The amies were analy	de was derived from zed for C, H, N.	i t-Glu. ≃ Tl	he amide was deri <b>ve</b> d from	ntsAsp.
plac	atch (2016) "Locor e conditioning effer macology, Vol 27 (	cts of	f MDAI i		,	
From <b>abstract</b> : "5,6-Methylenedioxy-2-aminoindane (MDAI) has become a common substitute for $(\pm)$ -3,4- methylenedioxymethamphetamine (MDMA) in Ecstasy. <b>MDAI is known to produce MDMA-like discriminative</b> <b>stimulus effects</b> , but it is not known whether MDAI has psychostimulant or hallucinogen-like effects. MDAI was tested for locomotor stimulant effects in mice and subsequently for discriminative stimulus effects in rats trained to discriminate cocaine (10 mg/kg, intraperitoneally), methamphetamine (1 mg/kg, intraperitoneally),						
	peritoneally), ±MI -)-2,5-dimethoxy-4		· –	-	-	• /

(0.5 mg/kg, intraperitoneally) from salineMDAI fully substituted for the discriminative stimulus effects of MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine (7.5 mg/kg), but produced only 73% methamphetamine- appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. <b>The effects of MDAI on locomotor activity</b> <b>and drug discrimination were similar to those</b> <b>produced by MDMA, having both psychostimulant-like</b> <b>and hallucinogen-like effects</b> ; thus, MDAI may have similar abuse potential as MDMA.
5. Nichols (1986) "Synthesis and Evaluation of 2,3- Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5- Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304.
From <b>page 304, paragraph 2</b> : "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5-(methylenedioxy)amphetamine (8; MMDA-2) is active $H_3C$ NH <sub>2</sub>
OCH3
and produces clear central effects at an oral dosage of 25 mg of the hydrochloride"
2. U.S. Pat. App. Doc. No. 2009/0131335 "ABUSE- RESISTANT AMPHETAMINE PRODRUGS" (Published 21 May 2009).
From <b>paragraph</b> [0173]: "To a solution of a protected amino acid <b>succinimidyl ester</b> (2.0 eq) in 1,4-dioxane (30 mL) was added d-amphetamine sulfate (1.0 eq) and NMM (4.0 eq). The resulting mixture was allowed to stir for 20 h at 20° C. Water (10 mL) was added, and the solution was stirred for 10 minutes prior to removing solvents under reduced pressure. The crude product was dissolved in EtOAc (100 mL) and washed with 2% AcOH aq (3×100 mL), saturated NaHCO3 solution (2×50 mL), and brine (1×100 mL). The organic extract was dried over MgSO4, filtered, and evaporated to dryness to afford the protected amino acid amphetamine conjugate. This intermediate was directly deprotected by adding 4 N HCl in 1,4-dioxane (20 mL). The solution was stirred for 20 h at 25° C. The

	solvent was evaporated, and the product dried in vacuum to afford the corresponding amino acid amphetamine hydrochloride conjugate."
17. The method of production according to claim 16, wherein: (i) the safrylamine is selected from the group consisting of 3,4-methylenedioxy- N-methylamphetamine (MDAA), 3,4- methylenedioxyamphetamine (MDA), 2- methoxy-4,5- methylenedioxy-2- aminoindane (MDAI); and/or (ii) the activating agent is selected from the group consisting of 1,1'- carbonyldiimidazole, triethylamine, diisopropylethylamine, pyridine and 4- dimethylaminopyridine, dicyclohexylcarbodiimide (DCC), diisopropylcarbodiimide (DCC), 1-ethyl- 3-(3-dimethylaminopropyl)carbodiimide (EDC), 1- [bis(dimethylamino)methylene]-1H- 1,2,3-triazolo[4,5-b]pyridinium 3-oxide hexafluorophosphate (HATU), and (benzotriazol-1- yloxy)tripyrrolidinophosphonium hexafluorophosphate (PyBOP), or a combination thereof; and/or (iii) the protected amino acid is selected from the group consisting of N-(9- fluorenylmethyloxycarbonyl)-L- tryptophan, N,N'-di-carbobenzoxy-L- lysine, 1-benzyl-N-carbobenzoxy-L- glutamate, N-carbobenzoxy-L- glutamate, N-carbobenzoxy-L- aspartate; and/or (iv) the solvent I is selected from the group consisting of tetrahydrofuran, 2- methyltetrahydrofuran, and dioxane; and/or (v) the solvent II is selected from the group consisting of diethylether, methyl- tert-butylether, chloroform, and dichloromethane, or a combination thereof; and/or	From the application of interest's priority document DE 10 2020 123 793.6 (filed 11 September 2020): From claim 1: "1. 3,4-methylenedioxy-amphetamine peptide according to general formula I: (+) + (+)
	amino acid is chosen from the group consisting of lysine,

(vi) the yield of the safrylamine peptide is at least 45 wt% relative to the starting materials.	<ul> <li>alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine, leucine, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, and valine."</li> <li>From claim 5: "The compound of claim 1, wherein the amino acid is chosen from the group consisting of natural or synthetic."</li> <li>Figure 1A:</li> <li>Fig. 1A</li> </ul>
	MDMA
	Figure 2: Fig. 2 $f_{H} = \frac{M^{H_{2}}}{f_{H}} + \frac{M^{H_{2}}}{M^{H_{2}}} + \frac{M^{H_{2}}}{M^{H_{$
	<ul> <li>2. U.S. Pat. App. Doc. No. 2009/0131335 "ABUSE- RESISTANT AMPHETAMINE PRODRUGS" (Published 21 May 2009).</li> <li>From claim 1: "A method, in a subject, of preventing euphoria due to an amphetamine or a pharmaceutically effective salt thereof, said method comprising orally administering to said subject a prodrug or a salt thereof said prodrug comprising said amphetamine covalently bonded to a single amino acid or to a peptide comprising from 2 to 10 amino acids, whereby the blood levels of said amphetamine achieve a therapeutically effect level but said blood levels do not result in a euphoric effect."</li> </ul>

From paragraph [0096]: "The amphetamine, A, can be any of the sympathomimetic phenethylamine derivatives which have central nervous system stimulant activity such as amphetamine, or any derivative, analog, or salt thereof. Exemplary amphetamines include, but are not limited to, amphetamine, methamphetamine, methylphenidate, p- methoxyamphetamine, methylenedioxyamphetamine, 2,5-dimethoxy-4-methylamphetamine, 2,4,5- trimethoxyamphetamine, and 3,4- methylenedioxymethamphetamine"
<ul> <li>From paragraph [0107]: "Each amino acid can be any one of the L- or D-enantiomers, preferably L-enantiomers, of the naturally occurring amino acids: alanine (Ala or A), arginine (Arg or R), asparagine (Asn or N), aspartic acid (Asp or D), cysteine (Cys or C), glycine (Gly or G), glutamic acid (Glu or E), glutamine (Gln or Q), histidine (His or H), isoleucine (Ile or I), leucine (Leu or L), lysine (Lys or K), methionine (Met or M), proline (Pro or P), phenylalanine (Phe or F), serine (Ser or S), tryptophan (Trp or W), threonine (Thr or T), tyrosine (Tyr or Y), and valine (Val or V)"</li> <li>MAZUR (1970) "Structure-taste relation of aspartic acid amides" J. Med. Chem. Vol 13(6): 1217-1221.</li> </ul>

 Tab	le 2 (entry 64):					
	,		ars II			
No.	X		ACID AMIDES sp-X" Mp, "C	alt, deg	Formula	Taste
50 51	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; L- HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; D-	88 AC 98 AC	197–198 W 222–225 E. W	- 12 M + 14 W	$C_{13}H_{15}N_2O_3$ $C_{13}H_{16}N_2O_3$	50 0
52 53	HNCH(CH <sub>4</sub> )CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub> <sup>6</sup> HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>5</sub>	79 M 70 AC	164-166 A-W 212-214 P-W	+ 34 M - 15 W	$C_{14}H_{20}N_4O_3$ $C_{12}H_{16}N_4O_3$	-
54 55	$HNCH(C_2H_3)CH_2C_6H_3$ $HNC(CH_3)_2CH_2C_6H_3$	91 AC 96 AC	158~163 MET 159-161 W	+8 M ~16 M	$C_{14}H_{26}N_2O_3 + 0$ , 25H <sub>2</sub> O $C_{14}H_{26}N_2O_3$	5 20
56		91 M	223-224 M-W	-6 II	$C_{11}H_{16}N_2O_2$	10
	CH:			0.11	< 111111-120-1	
57 58	HNCHCHC <sub>6</sub> H <sub>3</sub> ; t- HNCH <sub>2</sub> CH(CH <sub>3</sub> )C <sub>6</sub> H,	95 M 70 AC	175-178 182-188 W	+5 M -20 W	$C_{14}H_{18}N_2O_8 \cdot H_2O$ $C_{12}H_{18}N_2O_4$	
59 60	N(CH <sub>2</sub> )CH(CH <sub>8</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>5</sub> ; 1	84 M	164-166 185-187	+47 W +12 W	$C_{14}H_{20}N_2O_1 \cdot 0.5H_2O$	
61	$N(CH_3)CH(CH_3)CH_2C_6H_3$ ; D- HNCH(CH_3)CH_2CH_2C_6H_3	82 M 95 AC	190-196 MW	+16 H	$C_{14}H_{20}N_2O_2 \cdot 0.5H_2O$ $C_{14}H_{20}N_2O_3$	5
62 63	HNCH(CH <sub>4</sub> )CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub> HNCH <sub>2</sub> CH <sub>2</sub> OC <sub>6</sub> H <sub>2</sub>	68 M 85 AC	180~184 M=W 184-185 W	+11 H -13 H	C <sub>12</sub> H <sub>18</sub> N <sub>2</sub> O <sub>4</sub> C <sub>12</sub> H <sub>16</sub> N <sub>2</sub> O <sub>4</sub>	10 +
64 65	$HNCH(CH_3)CH_2C_4H_3(OCH_2O)-3_74$ $HNCH(CH_2OH)CH_2C_4H_5;$ 1	95 M 95 AC	189–192 237–238 W	+6 M -26 AC	$C_{14}H_{18}N_2O_5$ $C_{13}H_{18}N_2O_4$	
66 67	HNCH(CH <sub>3</sub> )CH(OH)C <sub>8</sub> H; HNCH(CH <sub>3</sub> )CH <sub>7</sub> C <sub>6</sub> H <sub>4</sub> OH-4	98 M 95 M	188-190 M 160-185	+ 10 M + 5 W	$C_{11}H_1 N_2 O_4 \cdot 0.5 H_2 O_1 C_{10}H_1 N_2 O_4$	+
68 69	HNCH <sub>2</sub> CH <sub>2</sub> C <sub>4</sub> H <sub>4</sub> OH-4 HNCH(CH <sub>2</sub> OH)CH <sub>2</sub> C <sub>8</sub> H <sub>4</sub> OH-4; 1	72 AC 44 M	209~210 W 212~213 M	21 W 10 H	$C_{12}H_{18}N_2O_4$ $C_{18}H_{18}N_2O_4$	+
70	HNCH(CH <sub>3</sub> )CH <sub>2</sub> C <sub>6</sub> H <sub>4</sub> NHSO <sub>2</sub> CH <sub>1</sub> -4; 1	96 M	199-208 W	+14.11	$C_{14}H_{41}N_8O_5S$	
71 72	$HNCH(CH_3)CH_2C_6H_4F-4$ $HNCH_2CH_2C_4H_4F-4$	87 M 74 M	203-209 M-ET 208-209 W	+9 H −6 M	$C_{12}H_{17}FN_2O_3$ $C_{12}H_{15}FN_2O_3$	20 5
73	HNCH(CH.)CH2	85 M	168-180 M-ET	+6 H	$C_{11}H_{16}N_2O_4{\cdot}0.333H_2O$	10
74	HNCH,CH, L	71 M	195-196 M	- 17 M	$\mathrm{C}_{10}\mathrm{H}_{14}\mathrm{N}_{2}\mathrm{O}_{1}$	+
75	HNCH/CH_/CH_	96 AC	203-205 M	- 22 M	$C_{45}H_{19}N_4O_3$	
76	HNCH(CH <sub>3</sub> )CH <sub>2</sub> -e-C <sub>6</sub> H <sub>11</sub> ; 1	84 AC	184-185 M-W	- 19 M	$C_{13}H_{13}N_2O_3$	50
77 78	$HNCH(CH_0)CH_{2*}c_*C_6H_{11}; D=$ $HNCH_2CH_{2*}c_*C_8H_{11}$	60 M 94 AC	207-208 M-W 193-202 M-W	$^{+16}_{+7}$ M +7 AC	$C_{13}H_{24}N_2O_3$ $C_{13}H_{22}N_2O_3$	5 10
79 80	$N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1 $N(CH_3)CH(CH_4)CH_{2^*}c^*C_6H_{11}$ ; 1	78 M 64 M	179–180 P–ET 194–196	- 14 W +1 W	CuH28N2O1+0.25H2O CuH28N2O2	
81 82	HN-e-C <sub>6</sub> H <sub>11</sub> HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> CH <sub>3</sub>	91 M 92 M	224–225 W 190–194 A W	+16 H +9 AC	$C_{10}H_{18}N_2O_3$ $C_5H_{18}N_2O_4 \cdot 0.5H_2O$	 0
83	HN(CH <sub>2</sub> ) <sub>3</sub> CH(CH <sub>4</sub> )CH <sub>3</sub>	89 M	222223 MW		$C_{10}H_{20}N_2O_3$	0
84 85	$HNCH(CH_3)CH_2CH(CH_3)CH_3; 1_{*}$ $HNCH(CH_3)CH_2CH(CH_3)CH_3; 0_{*}$	91 AC 92 AC	166–168 W 201–202 W	−17 M +9 M	$C_{10}H_{20}N_2O_3 \cdot 0$ , $5H_2O$ $C_{10}H_{20}N_2O_3 \cdot 0$ , $25H_2O$	
86 87	$HNCH(C_2H_3)CH_2CH_2CH_3$ $HN(CH_2)_3CH_3$	93 M 88 M	196-200 AW 200-201 W	+12 AC +9 AC	C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , H <sub>2</sub> O C <sub>18</sub> H <sub>28</sub> N <sub>2</sub> O <sub>3</sub> , 0, 25H <sub>2</sub> O	
88 89	HNCH(CH <sub>4</sub> ) <sub>4</sub> CH <sub>4</sub> HN(CH <sub>4</sub> ) <sub>6</sub> CH <sub>4</sub>	98 M 89 M	188 -193 A -W 200-201 W	+11 AC +8 AC	$C_{10}H_{20}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{22}N_2O_3 \cdot 0.25H_2O$	30 +
90 91	HNCH(CH <sub>3</sub> )(CH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub>	95 M	190~194	$\pm 7$ AC	$C_{11}H_{22}N_2O_3$	20 +
92	$HNCH(CH_3)CH_2CH(CH_3)CH_2CH_2$ $HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3$	94 M 94 M	162–166 W 184–188 A–W	-2 M +9 AC	$C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$ $C_{11}H_{22}N_2O_5 \cdot 0.25H_2O$	50
93 94	$HNCH(C_2H_5)(CH_2)_3CH_3$ $HNCH(CH_3)(CH_2)_4CH_3;$ 1	98 M 94 M	190–195 187–189 W	+9 AC 5 M	$C_{11}H_{22}N_2O_3 \cdot 0$ , 5H <sub>2</sub> O $C_{12}H_{22}N_2O_3$ , H <sub>2</sub> O	4: 50
95 96	$HNCH(CH_3)(CH_2)_4CH_3; L^d$ $HNCH(CH_3)(CH_2)_4CH_3; D$	97 M 96 M	213-214 M-W 217-218 M-W	-5 M +5 M	$C_{11}H_{22}N_2O_3 + 05H_2O_3$ $C_{11}H_{22}N_2O_3$	
97 98	$HNCH(CH_3)(CH_2)_4CH_3; D^d$ $HNCH(CH_2)CH_2CH_2CH(CH_2)CH_3; L-$	97 M 84 M	189–192 W 187–190 W	$^{+6}_{+23}$ H	$C_{15}H_{22}N_2O_3$ $C_{13}H_{22}N_2O_3 + 0.5H_2O$	100
99 100	$HNCH(CH_8)CH_2CH_2CH(CH_8)CH_8; \ L^d$	99 M	215-216 M-W	+2 M -3 M	$C_1$ ; $H_2$ ; $N_2$ O <sub>3</sub>	0
101	$HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D-HNCH(CH_3)CH_2CH_2CH(CH_3)CH_3; D^4$	96 M 91 M	210–213 M–W 192–195 W	-26 H	$C_{11}H_{12}N_2O_3 \cdot 0.5H_2O$ $C_{11}H_{12}N_2O_3 \cdot 0.25H_2O$	+
102 103	HNCH(CH <sub>3</sub> )CH <sub>2</sub> CH <sub>2</sub> OCH <sub>2</sub> CH <sub>3</sub> HNCH(CH <sub>2</sub> )(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	77 M 85 M	166-170 M-ET 180-190	+3 M -8 M	$C_{10}H_{20}N_2O_4 \cdot 0.25H_2O \\ C_{12}H_{21}N_2O_3 \cdot 0.5H_2O$	10 10
<sup>4</sup> See T <sup>4</sup> The ami	able I for abbreviations and explanations. de was derived from p-Asp. * All compound	<sup>b</sup> The amies were analy	de was derived from zed for C, H, N.	i t-Glu. ≃Tl	he amide was deri <b>ve</b> d from	ntsAsp.
plac	atch (2016) "Locor e conditioning effer macology, Vol 27 (	cts of	f MDAI i		,	
(ME meth <b>MD</b> stim psyc teste subs train intra	n abstract: "5,6-M DAI) has become a nylenedioxymethan AI is known to pro- nulus effects, but it chostimulant or hall ad for locomotor sti equently for discrim- ted to discriminate aperitoneally), meth- presitoneally, +MI	comr nphet oduc is no lucino mula ninat cocai	non subs tamine (M e MDMA t known ogen-like nt effects tive stimu ne (10 m hetamine	titute MDM <b>A-like</b> wheth e effec s in m alus e ag/kg, e (1 mg	for (±)-3,4- A) in Ecstas e <b>discrimina</b> her MDAI h ets. MDAI w ice and ffects in rats g/kg,	as 7as
	peritoneally), ±MI -)-2,5-dimethoxy-4		· –	-	-	• /

(0.5 mg/kg, intraperitoneally) from salineMDAI fully substituted for the discriminative stimulus effects of MDMA (2.5 mg/kg), (-)-2,5-dimethoxy-4- methylamphetamine hydrochloride (5 mg/kg), and cocaine (7.5 mg/kg), but produced only 73% methamphetamine- appropriate responding at a dose that suppressed responding (7.5 mg/kg). MDAI produced tremors at 10 mg/kg in one methamphetamine-trained rat. MDAI produced conditioned place preference from 0.3 to 10 mg/kg. The effects of MDAI on locomotor activity and drug discrimination were similar to those produced by MDMA, having both psychostimulant-like and hallucinogen-like effects; thus, MDAI may have similar abuse potential as MDMA. 5. Nichols (1986) "Synthesis and Evaluation of 2,3- Dihydrobenzofuran Analogues of the Hallucinogen 1-(2,5- Dimethoxy-4methylphenyl)-2-aminopropane: Drug Discrimination Studies in Rats" Vol. 29 (2): 302-304. From page 304, paragraph 2: "This is all the more difficult to explain in light of the fact that 2-methoxy-4,5- (methylenedioxy)amphetamine (8; MMDA-2) is active $H_3C \rightarrow NH_2$ $0 \rightarrow 0$ CH <sub>3</sub> <b>8</b> and produces clear central effects at an oral dosage of 25
and produces clear central effects at an oral dosage of 25 mg of the hydrochloride"



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Page 1 of 4

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# **ELECTRONIC ACKNOWLEDGEMENT RECEIPT**

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/024,517	03/21/2024 11:28:58 AM Z ET	

### **Title of Invention**

## **Application Information**

APPLICATION TYPE

CONFIRMATION #

PATENT CENTER # 64778004

CUSTOMER # \_

INTL. APPLICATION # -

CORRESPONDENCE - ADDRESS

## **Documents**

# **TOTAL DOCUMENTS: 14**

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
Concise-description- generated.pdf		2	Concise Description of Relevance	32 KB
Third-party-notification- request.pdf		1	Request for Notification of Non-compliant Third-Party Submission	13 KB
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US20230322743- 3P.RELEVANCE.pdf	(1-55)	55	Concise Description of Relevance	827 KB

PATENT #

FILED BY Steven Schmid

FILING DATE 03/03/2023

FIRST NAMED INVENTOR

INTL. FILING DATE -

AUTHORIZED BY -

				Page 2 of 4
US20230322743- 3P.RELEVANCE.pdf	(1-55)	55	Concise Description of Relevance	827 KB
US20230322743- 3P.RELEVANCE.pdf	(1-1)	1	Concise Description of Relevance	128 KB
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## Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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63115245 drawings\_specification\_claims-NPL.pdf

3. MAZUR.pdf

3. MAZUR-NPL.pdf

4. GATCH.pdf

4. GATCH-NPL.pdf

5. NICHOLS.pdf

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5. NICHOLS-NPL.pdf	6E1F1A6DDB6CC3DD0E462D0FF751E6245D4C7E7CB3C684A A25B91897CE78665665CF9E9CB23E7072226DF1E4EBEF5055 0E170E3D1FA1E96F8F666AD7CD03A43C
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If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

#### National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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## **ELECTRONIC PAYMENT RECEIPT**

<b>APPLICATION #</b>	RECEIPT DATE / TIME	ATTORNEY DOCKET #
18/024,517	03/21/2024 11:28:58 AM Z ET	

### **Title of Invention**

## **Application Information**

APPLICATION TYPE		PATENT #	
CONFIRMATION #		FILED BY	Steven Schmid
PATENT CENTER #	64778004	AUTHORIZED BY	-
CUSTOMER #	_	FILING DATE	03/03/2023
INTL. APPLICATION #	-	INTL. FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	

## **Payment Information**

		PAYMENT TRANSACT E20243KB30429611	TION ID PAYMENT AUTHORIZED BY Steven Schmid		ORIZED BY
FEE CODE	DESCRIPTION		ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
2818	DOCUMENT FE PARTY SUBMIS CFR 1.290(F))		72.00	1	72.00
				TOTAL AMOUNT:	\$72.00

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371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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