

## **Nano-QSAR modeling for predicting biological activity of diverse nanomaterials**

### **Supporting information**

**Kunwar P. Singh<sup>\*1,2</sup>, Shikha Gupta<sup>1,2</sup>**

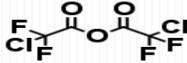
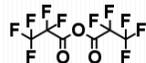
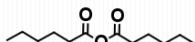
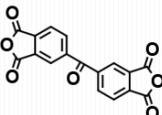
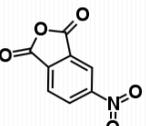
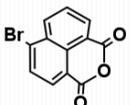
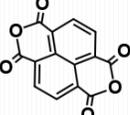
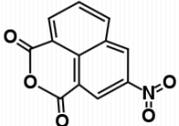
Corresponding author: Kunwar P. Singh<sup>\*1,2</sup>

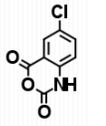
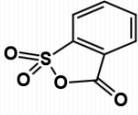
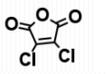
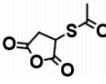
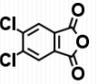
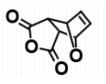
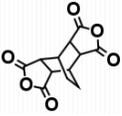
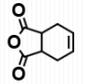
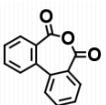
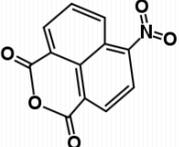
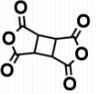
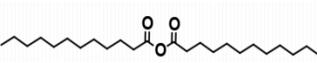
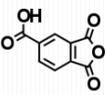
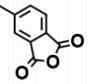
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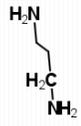
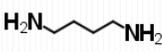
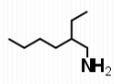
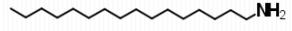
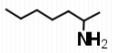
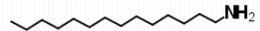
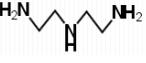
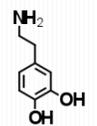
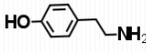
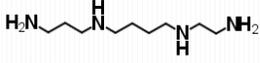
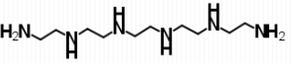
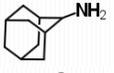
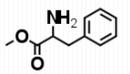
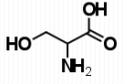
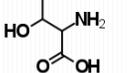
**Table S11.** Chemical structure, Coatings name and SMILES of 109 NPs (case study 2).

S. No.	Chemical Structure	Coatings name	SMILES notation
1		Trifluoroacetic anhydride	<chem>FC(F)(F)C(=O)OC(=O)C(F)(F)F</chem>
2		Chlorodifluoroacetic anhydride	<chem>FC(F)(Cl)C(=O)OC(=O)C(F)(F)Cl</chem>
3		Pentafluoropropanoic anhydride	<chem>FC(F)(F)C(F)(F)C(=O)OC(=O)C(F)(F)C(F)(F)F</chem>
4		3,3-Dimethyldihydrofuran-2,5-dione	<chem>CC1(C)CC(=O)OC1=O</chem>
5		Furan-2,5-dione	<chem>O=C1OC(=O)C=C1</chem>
6		3-Methylfuran-2,5-dione	<chem>CC1=CC(=O)OC1=O</chem>
7		3,4-Dimethylfuran-2,5-dione	<chem>CC1=C(C)C(=O)OC1=O</chem>
8		Hexanoic anhydride	<chem>CCCCCC(=O)OC(=O)CCCCCC</chem>
9		3-Methyldihydrofuran-2,5-dione	<chem>CC1CC(=O)OC1=O</chem>
10		5,5'-Carbonylbis(2-benzofuran-1,3-dione)	<chem>O=C1OC(=O)c2cc(ccc12)C(=O)c1ccc2C(=O)OC(=O)c2c1</chem>
11		5-Nitro-2-benzofuran-1,3-dione	<chem>O=C1OC(=O)c2cc(ccc12)N(=O)=O</chem>
12		6-Bromo-1H,3H-benzo[de]isochromene-1,3-dione	<chem>Brc1ccc2C(=O)OC(=O)c3cccc1c23</chem>
13		1,4,5,8-Naphthalenetetracarboxylic acid anhydride	<chem>O=C1OC(=O)c2ccc3C(=O)OC(=O)c4ccc1c2c34</chem>
14		4,5,6,7-Tetrafluoro-2-benzofuran-1,3-dione	<chem>Fc1c(F)c(F)c2C(=O)OC(=O)c2c1F</chem>
15		5-Nitro-1H,3H-benzo[de]isochromene-1,3-dione	<chem>O=C1OC(=O)c2cc(cc3cccc1c23)N(=O)=O</chem>
16		4-Hydroxy-2-benzofuran-1,3-dione	<chem>Oc1cccc2C(=O)OC(=O)c12</chem>

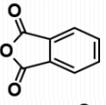
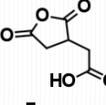
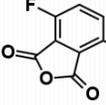
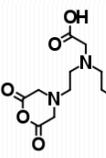
17		4-Oxatricyclo[5.2.2.0,2,6]undec-8-ene-3,5-dione	<chem>O=C1OC(=O)C2C3CCC(C=C3)C12</chem>
18		6-Chloro-2H-3,1-benzoxazine-2,4(1H)-dione	<chem>Clc1ccc2NC(=O)OC(=O)c2c1</chem>
19		3H-2,1-benzoxathiol-3-one 1,1-dioxide	<chem>O=C1OS(=O)(=O)c2ccccc12</chem>
20		3,4-Dichlorofuran-2,5-dione	<chem>ClC1=C(Cl)C(=O)OC1=O</chem>
21		S-(2,5-dioxotetrahydrofuran-3-yl) ethanethioate	<chem>CC(=O)SC1CC(=O)OC1=O</chem>
22		5,6-Dichloro-2-benzofuran-1,3-dione	<chem>Clc1cc2C(=O)OC(=O)c2cc1Cl</chem>
23		4,10-Dioxatricyclo[5.2.1.0,2,6]dec-8-ene-3,5-dione	<chem>O=C1OC(=O)C2C3OC(C=C3)C12</chem>
24		Bicyclo[2.2.2]-7-octene-2,3,5,6-tetracarboxylic Dianhydride	<chem>O=C1OC(=O)C2C3C=CC(C12)C1C3C(=O)OC1=O</chem>
25		3a,4,7,7a-Tetrahydro-2-benzofuran-1,3-dione	<chem>O=C1OC(=O)C2CC=CCC12</chem>
26		Dibenz(c,e)oxepin-5,7-dione	<chem>O=C1OC(=O)c2ccccc2-c2ccccc12</chem>
27		6-Nitro-1H,3H-benzo[de]isochromene-1,3-dione	<chem>O=C1OC(=O)c2ccc(c3cccc1c23)N(=O)=O</chem>
28		Tetrahydrofuro[3',4':3,4]cyclobuta[1,2-c]furan-1,3,4,6-tetrone	<chem>O=C1OC(=O)C2C1C1C2C(=O)OC1=O</chem>
29		Lauric anhydride	<chem>CCCCCCCCCCCC(=O)OC(=O)CCCCCCCCCCC</chem>
30		1,3-Dioxo-1,3-dihydro-2-benzofuran-5-carboxylic acid	<chem>OC(=O)c1ccc2C(=O)OC(=O)c2c1</chem>
31		5-Methyl-2-benzofuran-1,3-dione	<chem>Cc1ccc2C(=O)OC(=O)c2c1</chem>

32		4-Nitro-2-benzofuran-1,3-dione	<chem>O=C1OC(=O)c2c1cccc2N(=O)=O</chem>
33		1H-isochromene-1,3(4H)-dione	<chem>O=C1Cc2ccccc2C(=O)O1</chem>
34		Dihydro-2H-pyran-2,6(3H)-dione	<chem>O=C1CCCC(=O)O1</chem>
35		4,4'-Ethane-1,2-diylmorpholine-2,6-dione	<chem>O=C1CN(CCN2CC(=O)OC(=O)C2)CC(=O)O1</chem>
36		2H-3,1-benzoxazine-2,4(1H)-dione	<chem>O=C1Nc2ccccc2C(=O)O1</chem>
37		1-Methyl-2H-3,1-benzoxazine-2,4(1H)-dione	<chem>CN1C(=O)OC(=O)c2ccccc12</chem>
38		4-Methyldihydro-2H-pyran-2,6(3H)-dione	<chem>CC1CC(=O)OC(=O)C1</chem>
39		4,5,6,7-Tetrahydro-2-benzofuran-1,3-dione	<chem>O=C1OC(=O)C2=C1CCCC2</chem>
40		2,5-Dioxotetrahydrofuran-3,4-diyl diacetate	<chem>CC(=O)OC1C(OC(C)=O)C(=O)OC1=O</chem>
41		4,5,6,7-Tetrabromo-2-benzofuran-1,3-dione	<chem>BrC1c(Br)c(Br)c2C(=O)OC(=O)c2c1Br</chem>
42		Hexahydro-2-benzofuran-1,3-dione	<chem>O=C1OC(=O)C2CCCCC12</chem>
43		5,6-Dihydro-1H-cyclopenta[c]furan-1,3(4H)-dione	<chem>O=C1OC(=O)C2=C1CCC2</chem>
44		Iodoacetic anhydride	<chem>ICC(=O)OC(=O)CI</chem>
45		Chloroacetic anhydride	<chem>ClCC(=O)OC(=O)CCl</chem>
46		1,7,8,9,10,10-Hexachloro-4-oxatricyclo[5.2.1.0 <sup>2,6</sup> ]dec-8-ene-3,5-dione	<chem>ClC1=C(Cl)C2(Cl)C3C(C(=O)OC3=O)C1(Cl)C2(Cl)Cl</chem>
47		Palmitic anhydride	<chem>CCCCCCCCCCCCCCCC(=O)OC(=O)CCCCCCCCCCCCCCCC</chem>

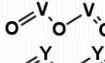
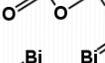
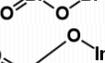
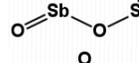
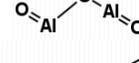
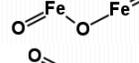
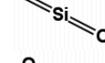
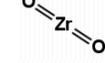
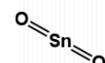
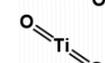
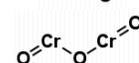
48		5-amino-1H,3H-benzo[de]isochromene-1,3-dione	<chem>Nc1ccc2C(=O)OC(=O)c3cccc1c23</chem>
49		Decanoic anhydride	<chem>CCCCCCCCC(=O)OC(=O)CCCCCCC</chem>
50		8-Oxaspiro[4.5]decane-7,9-dione	<chem>O=C1CC2(CCCC2)CC(=O)O1</chem>
51		4-Oxatricyclo[5.2.1.0 <sup>2,6</sup> ]decane-3,5-dione	<chem>O=C1OC(=O)C2C3CCC(C3)C12</chem>
52		1H,3H-benzo[de]isochromene-1,3-dione	<chem>O=C1OC(=O)c2cccc3cccc1c23</chem>
53		3-Phenyldihydro-2H-pyran-2,6(3H)-dione	<chem>O=C1CCC(C(=O)O1)c1ccccc1</chem>
54		4,5,6,7-Tetrachloro-2-benzofuran-1,3-dione	<chem>Clc1c(Cl)c(Cl)c2C(=O)OC(=O)c2c1Cl</chem>
55		4,7-Dichloro-2-benzofuran-1,3-dione	<chem>Clc1ccc(Cl)c2C(=O)OC(=O)c12</chem>
56		3,3-Dimethyldihydro-2H-pyran-2,6(3H)-dione	<chem>CC1(C)CCC(=O)OC1=O</chem>
57		Pentan-1-amine	<chem>CCCCCN</chem>
58		4-Methylpentan-2-amine	<chem>CC(C)CC(C)N</chem>
59		3-Amino-6-(hydroxymethyl)cyclohexane-1,2,4-triol	<chem>NC1C(O)CC(CO)C(O)C1O</chem>
60		Hexan-1-amine	<chem>CCCCCCN</chem>
61		2-Methylpropan-2-amine	<chem>CC(C)(C)N</chem>
62		2-Methylpropan-1-amine	<chem>CC(C)CN</chem>
63		2,2-Dimethylpropan-1-amine	<chem>CC(C)(C)CN</chem>
64		3-Methylbutan-1-amine	<chem>CC(C)CCN</chem>
65		Pentan-3-amine	<chem>CCC(N)CC</chem>
66		2-Methylbutan-2-amine	<chem>CCC(C)(C)N</chem>
67		Ethane-1,2-diamine	<chem>NCCN</chem>
68		Pentadecan-1-amine	<chem>CCCCCCCCCCCCCCCN</chem>

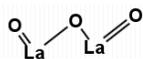
69		Propane-1,3-diamine	NCCCN
70		Butane-1,4-diamine	NCCCCN
71		Hexane-1,6-diamine	NCCCCCN
72		2-Ethylhexan-1-amine	CCCCC(CC)CN
73		1-Hexadecylamine	CCCCCCCCCCCCCCCCCN
74		Heptan-2-amine	CCCCCC(C)N
75		Tetradecan-1-amine	CCCCCCCCCCCCCCCCCN
76		N-(2-Aminoethyl)ethane-1,2-diamine	NCCNCCN
77		Tricyclo[3.3.1.1 <sup>3,7</sup> ]decane-1-methanamine	NCC12CC3CC(CC(C3)C1)C2
78		4-(2-Aminoethyl)benzene-1,2-diol	NCCc1ccc(O)c(O)c1
79		4-(2-Aminoethyl)phenol	NCCc1ccc(O)cc1
80		N-(2-Aminoethyl)-N'-(3-aminopropyl)butane-1,4-diamine	NCCCNCCCCNCCN
81		N,N'-Bis(2-aminoethyl)propane-1,3-diamine	NCCNCCCNCCN
82		3,6,9,12-Tetraazatetradecane-1,14-diamine	NCCNCCNCCNCCNCCN
83		Tricyclo[3.3.1.1 <sup>03,7</sup> ]nonan-3-amine	NC12CC3CC(CC1C3)C2
84		Tricyclo[3.3.1.1 <sup>13,7</sup> ]decane-2-amine	NC1C2CC3CC(C2)CC1C3
85		Aminoacetic acid	NCC(O)=O
86		Methyl 2-amino-3-phenylpropanoate	COC(=O)C(N)Cc1ccccc1
87		2-Amino-3-hydroxypropanoic acid	NC(CO)C(O)=O
88		2-Amino-3-hydroxybutanoic acid	CC(O)C(N)C(O)=O

89		2-Amino-3-(1H-indol-3-yl)propanoic acid	<chem>NC(Cc1c[nH]c2ccccc12)C(O)=O</chem>
90		2-ammonio-3-(4-hydroxyphenyl)propanoate	<chem>NC(Cc1ccc(O)cc1)C(O)=O</chem>
91		2-Amino-3-methylbutanoic acid	<chem>CC(C)C(N)C(O)=O</chem>
92		2,6-Diaminohexanoic acid	<chem>NCCCCC(N)C(O)=O</chem>
93		Amino(4-chlorophenyl)acetic acid	<chem>NC(C(O)=O)c1ccc(Cl)cc1</chem>
94		2-Aminopropanoic acid	<chem>CC(N)C(O)=O</chem>
95		2-Amino-5-carbamimidamidopentanoic acid	<chem>NC(CCCNC(N)=N)C(O)=O</chem>
96		2-Aminobutanedioic acid	<chem>NC(CC(O)=O)C(O)=O</chem>
97		2,5-Diamino-5-oxopentanoic acid	<chem>NC(CCC(N)=O)C(O)=O</chem>
98		2-Aminopentanedioic acid	<chem>NC(CCC(O)=O)C(O)=O</chem>
99		2-Amino-3-(1H-imidazol-4-yl)propanoic acid	<chem>NC(Cc1c[nH]cn1)C(O)=O</chem>
100		2-Amino-4-(methylsulfanyl)butanoic acid	<chem>CSCCC(N)C(O)=O</chem>
101		2-Amino-3-phenylpropanoic acid	<chem>NC(Cc1ccccc1)C(O)=O</chem>
102		Dihydrofuran-2,5-dione	<chem>O=C1CCC(=O)O1</chem>
103		Acetic anhydride	<chem>CC(=O)OC(C)=O</chem>
104		3-Methylidenedihydrofuran-2,5-dione	<chem>C=C1CC(=O)OC1=O</chem>
105		1,4-Dioxane-2,6-dione	<chem>O=C1COCC(=O)O1</chem>

106		2-Benzofuran-1,3-dione	<chem>O=C1OC(=O)c2ccccc12</chem>
107		(2,5-Dioxotetrahydrofuran-3-yl)acetic acid	<chem>OC(=O)CC1CC(=O)OC1=O</chem>
108		4,7-Difluoro-2-benzofuran-1,3-dione	<chem>Fc1ccc(F)c2C(=O)OC(=O)c12</chem>
109		{Bis[2-(2,6-dioxomorpholin-4-yl)ethyl]amino}acetic acid	<chem>OC(=O)CN(CCN1CC(=O)OC(=O)C1)CCN1CC(=O)OC(=O)C1</chem>

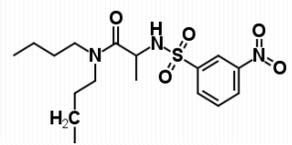
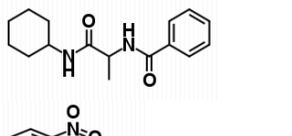
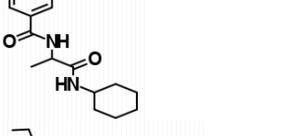
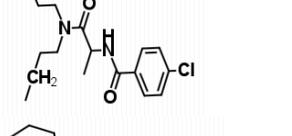
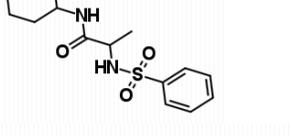
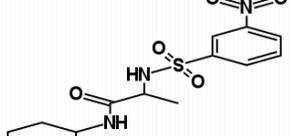
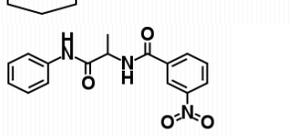
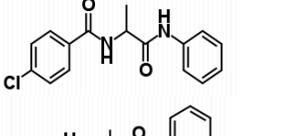
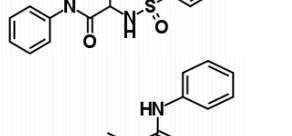
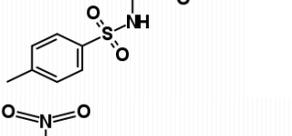
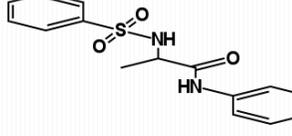
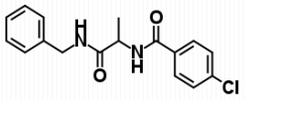
**Table S12:** Chemical structure and SMILES of metal oxide NPs (case study 3)

S.No.	Chemical structure	Metal Oxide NPs	SMILES notation
1		ZnO	<chem>O = [Zn]</chem>
2		CuO	<chem>[Cu] = O</chem>
3		V <sub>2</sub> O <sub>3</sub>	<chem>O = [V]O[V] = O</chem>
4		Y <sub>2</sub> O <sub>3</sub>	<chem>O = [Y]O[Y] = O</chem>
5		Bi <sub>2</sub> O <sub>3</sub>	<chem>O = [Bi]O[Bi] = O</chem>
6		In <sub>2</sub> O <sub>3</sub>	<chem>O = [In]O[In] = O</chem>
7		Sb <sub>2</sub> O <sub>3</sub>	<chem>O = [Sb]O[Sb] = O</chem>
8		Al <sub>2</sub> O <sub>3</sub>	<chem>O = [Al]O[Al] = O</chem>
9		Fe <sub>2</sub> O <sub>3</sub>	<chem>O = [Fe]O[Fe] = O</chem>
10		SiO <sub>2</sub>	<chem>O = [Si] = O</chem>
11		ZrO <sub>2</sub>	<chem>O = [Zr] = O</chem>
12		SnO <sub>2</sub>	<chem>O = [Sn] = O</chem>
13		TiO <sub>2</sub>	<chem>O = [Ti] = O</chem>
14		CoO	<chem>[Co] = O</chem>
15		NiO	<chem>[Ni] = O</chem>
16		Cr <sub>2</sub> O <sub>3</sub>	<chem>O = [Cr]O[Cr] = O</chem>

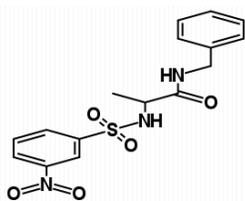


**Table S13:** Chemical structure and SMILES of decorator portions of decorated nano tubes (Case study 4)

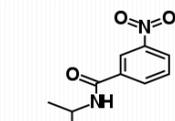
NT No.	Chemical Structure	<sup>a</sup> SMILES notation
8		<chem>CC(NC(=O)OC3C1C=CC=CC1C2C=CC=CC23)C(=O)Nc4ccccc4</chem>
11		<chem>CCOC(=O)c4ccc(NC(=O)C(C)NC(=O)OC3C1C=CC=CC1C2C=CC=CC23)cc4</chem>
16		<chem>CC(N)C(=O)Nc1ccccc1</chem>
17		<chem>CC(N)C(=O)NCc1ccccc1</chem>
24		<chem>CCCCNC(=O)C(C)NC(=O)c1cccc(N(=O)=O)c1</chem>
25		<chem>CCCCNC(=O)C(C)NC(=O)c1ccc(Cl)cc1</chem>
28		<chem>CCCCNC(=O)C(C)NS(=O)(=O)c1cccc(N(=O)=O)c1</chem>
33		<chem>CCCCN(CCCC)C(=O)C(C)NC(=O)c1ccc(Cl)cc1</chem>
34		<chem>CCCCN(CCCC)C(=O)C(C)NS(=O)(=O)c1ccccc1</chem>
35		<chem>CCCCN(CCCC)C(=O)C(C)NS(=O)(=O)c1ccc(C)cc1</chem>

36		<chem>CCCCN(CCCC)C(=O)C(C)NS(=O)(=O)c1cccc(N(=O)=O)c1</chem>
38		<chem>CC(NC(=O)c1ccccc1)C(=O)NC2CCCCC2</chem>
40		<chem>CC(NC(=O)c1cccc(N(=O)=O)c1)C(=O)NC2CCCCC2</chem>
41		<chem>CCCCN(CCCC)C(=O)C(C)NC(=O)c1ccc(Cl)cc1</chem>
42		<chem>CC(NS(=O)(=O)c1ccccc1)C(=O)NC2CCCCC2</chem>
44		<chem>CC(NS(=O)(=O)c1cccc(N(=O)=O)c1)C(=O)NC2CCCCC2</chem>
48		<chem>CC(NC(=O)c1cccc(N(=O)=O)c1)C(=O)Nc2ccccc2</chem>
49		<chem>CC(NC(=O)c1ccc(Cl)cc1)C(=O)Nc2ccccc2</chem>
50		<chem>CC(NS(=O)(=O)c1ccccc1)C(=O)Nc2ccccc2</chem>
51		<chem>Cc2ccc(S(=O)(=O)NC(C)C(=O)Nc1ccccc1)cc2</chem>
52		<chem>CC(NS(=O)(=O)c1cccc(N(=O)=O)c1)C(=O)Nc2ccccc2</chem>
57		<chem>CC(NC(=O)c1ccc(Cl)cc1)C(=O)Nc2ccccc2</chem>

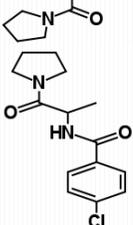
60


CC(NS(=O)(=O)c1cccc(N(=O)=O)c1)C(=O)NCc2ccccc2

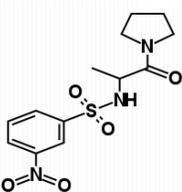
64


CC(NC(=O)c1cccc(N(=O)=O)c1)C(=O)N2CCCC2

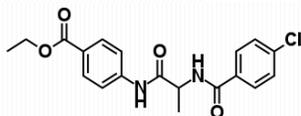
65


CC(NC(=O)c1ccc(Cl)cc1)C(=O)N2CCCC2

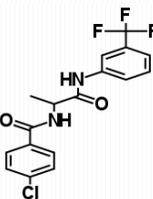
68


CC(NS(=O)(=O)c1cccc(N(=O)=O)c1)C(=O)N2CCCC2

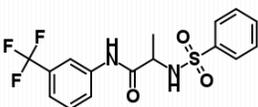
73


CCOC(=O)c2ccc(NC(=O)C(C)NC(=O)c1ccc(Cl)cc1)cc2

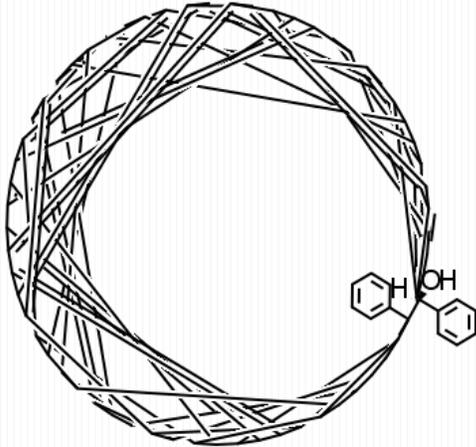
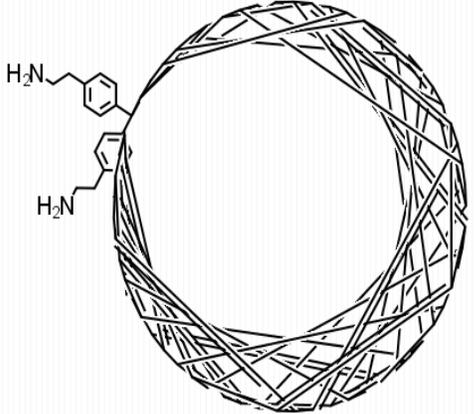
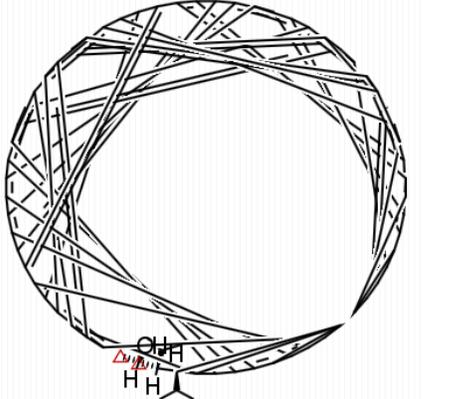
81


CC(NC(=O)c1ccc(Cl)cc1)C(=O)Nc2cccc(C(F)(F)F)c2

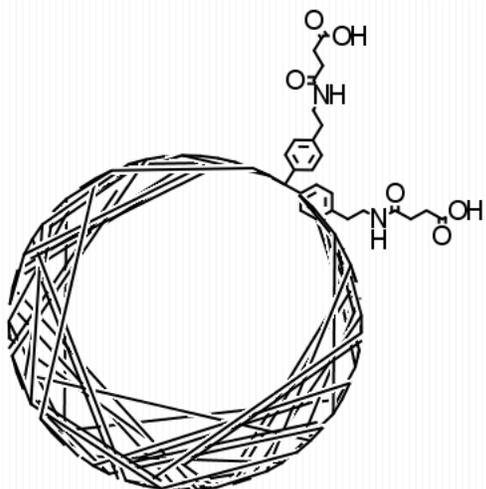
82


CC(NS(=O)(=O)c1ccccc1)C(=O)Nc2cccc(C(F)(F)F)c2

**Table SI4:** Chemical structure and SMILES of fullerene derivatives (case study 5)

S.No.	Chemical structure	Chemical name	SMILES notation
1		(S)-phenyl({54-phenyldotriacontacyclo [13.11.27.5 <sup>{6,12}</sup> .1 <sup>{4,31}</sup> .1 <sup>{17,21}</sup> .1 <sup>{19,26}</sup> .0 <sup>{2,29}</sup> .0 <sup>{3,24}</sup> .0 <sup>{4,31}</sup> .0 <sup>{5,23}</sup> .0 <sup>{7,32}</sup> .0 <sup>{8,42}</sup> .0 <sup>{11,43}</sup> .0 <sup>{13,45}</sup> .0 <sup>{14,47}</sup> .0 <sup>{18,53}</sup> .0 <sup>{20,25}</sup> .0 <sup>{27,50}</sup> .0 <sup>{28,36}</sup> .0 <sup>{30,34}</sup> .0 <sup>{33,41}</sup> .0 <sup>{35,39}</sup> .0 <sup>{37,49}</sup> .0 <sup>{38,46}</sup> .0 <sup>{40,44}</sup> .0 <sup>{48,52}</sup> .0 <sup>{9,61}</sup> .0 <sup>{10,58}</sup> .0 <sup>{16,57}</sup> .0 <sup>{22,60}</sup> .0 <sup>{51,55}</sup> .0 <sup>{56,59}</sup> ]henhexaconta-1(27),2,6 (61),7,9,11,13,15(53),16 (57),17,19,21(56),22(60),23,25,28(36),33(41),34,37,39,42,44,46,48(52),49,51(55),58-heptacosaeen-54-yl)methanol	O[C@@H](c1cccc1)C%28(c2cccc2)C%33%29C%14C%16=C%32C%19=C%31C=9c%18c3C%34=C7c4c3c%17c%15c%23c4C=%22C=8C6=C%21c%25c5c%13C=%12C%11=C5C6=C(C7=8)C%10=C%34C=9C(=C%10%11)C=%30C=%12C(C%27c%13c%26(C=%20C%14=C(C%15=C%16c%17c%18%19)C=%24C=%20C(=C%21C=%22C%23=%24)c%25%26)C%27%28%29)C(C=%30%31)=C%32%33
2		2-(4-{54-[4-(2-aminoethyl)phenyl]dotriacontacyclo[13.11.27.5 <sup>{6,12}</sup> .1 <sup>{4,31}</sup> .1 <sup>{17,21}</sup> .1 <sup>{19,26}</sup> .0 <sup>{2,29}</sup> .0 <sup>{3,24}</sup> .0 <sup>{4,31}</sup> .0 <sup>{5,23}</sup> .0 <sup>{7,32}</sup> .0 <sup>{8,42}</sup> .0 <sup>{11,43}</sup> .0 <sup>{13,45}</sup> .0 <sup>{14,47}</sup> .0 <sup>{18,53}</sup> .0 <sup>{20,25}</sup> .0 <sup>{27,50}</sup> .0 <sup>{28,36}</sup> .0 <sup>{30,34}</sup> .0 <sup>{33,41}</sup> .0 <sup>{35,39}</sup> .0 <sup>{37,49}</sup> .0 <sup>{38,46}</sup> .0 <sup>{40,44}</sup> .0 <sup>{48,52}</sup> .0 <sup>{9,61}</sup> .0 <sup>{10,58}</sup> .0 <sup>{16,57}</sup> .0 <sup>{22,60}</sup> .0 <sup>{51,55}</sup> .0 <sup>{56,59}</sup> ]henhexaconta-1(27),2,6(61),7,9,11,13,15(53),16(57),17,19,21(56),22(60),23,25,28(36),33(41),34,37,39,42,44,46,48(52),49,51(55),58-heptacosaeen-54-yl)phenyl)ethan-1-amine	NCCc1ccc(cc1)C%28(c2ccc(CCN)cc2)C%33%29C%14C%16=C%32C%19=C%31C=9c%18c3C%34=C7c4c3c%17c%15c%23c4C=%22C=8C6=C%21c%25c5c%13C=%12C%11=C5C6=C(C7=8)C%10=C%34C=9C(=C%10%11)C=%30C=%12C(C%27c%13c%26(C=%20C%14=C(C%15=C%16c%17c%18%19)C=%24C=%20C(=C%21C=%22C%23=%24)c%25%26)C%27%28%29)C(C=%30%31)=C%32%33
3		(18S,20S,21R)-18,21-bis(propan-2-yl)dotriacontacyclo[8.7.46.1 <sup>{4,7}</sup> .0 <sup>{1,22}</sup> .0 <sup>{2,28}</sup> .0 <sup>{3,16}</sup> .0 <sup>{5,29}</sup> .0 <sup>{6,39}</sup> .0 <sup>{8,12}</sup> .0 <sup>{9,40}</sup> .0 <sup>{11,60}</sup> .0 <sup>{13,58}</sup> .0 <sup>{15,57}</sup> .0 <sup>{17,55}</sup> .0 <sup>{22,26}</sup> .0 <sup>{23,54}</sup> .0 <sup>{24,47}</sup> .0 <sup>{25,33}</sup> .0 <sup>{27,31}</sup> .0 <sup>{30,38}</sup> .0 <sup>{32,36}</sup> .0 <sup>{34,46}</sup> .0 <sup>{35,43}</sup> .0 <sup>{37,41}</sup> .0 <sup>{42,63}</sup> .0 <sup>{44,62}</sup> .0 <sup>{45,49}</sup> .0 <sup>{48,53}</sup> .0 <sup>{50,61}</sup> .0 <sup>{51,59}</sup> .0 <sup>{52,56}</sup> .0 <sup>{14,64}</sup> ]tetrahexaconta-2(28),3(16),4,6(39),7(64),8(12),9,11(60),13,15(57),24,29,31,33,35,37,40,42,44,46,48,50(61),51,53,55,58,62-heptacosaeen-20-ol	CC(C)[C@@H]%30C[C@H](O)[C@H](C(C)C)C%23%32C%10C=%14C%29=C%19C=%28c%13c%26c2c%12C%20=C1C=C5C4=C3c(c12)c%27C%25=C3C%24=C8C4=C7C=5C%21=C%11C=6c%22c9C(C=67)=C8C(C%23c9c%10c%18c%22C%15=C%11C(C=%16c%12c%13C%17=C%19C=%14C%18=C%15C=%16%17)=C%20%21)C%24=C%31C%25=C(C=%28c%26%27)C%29C%30%31%32

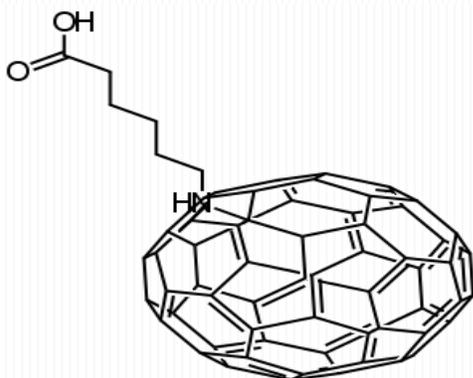
4



3-((2-[[4-(54-[[4-(2-(3-carboxypropanamido)ethyl)phenyl]dotriacontacyclo[13.11.27.5<sup>{6,12}.1<sup>{4,31}.1<sup>{17,21}.1<sup>{19,26}.0<sup>{2,29}.0<sup>{3,24}.0<sup>{4,31}.0<sup>{5,23}.0<sup>{7,32}.0<sup>{8,42}.0<sup>{11,43}.0<sup>{13,45}.0<sup>{14,47}.0<sup>{18,53}.0<sup>{20,25}.0<sup>{27,50}.0<sup>{28,36}.0<sup>{30,34}.0<sup>{33,41}.0<sup>{35,39}.0<sup>{37,49}.0<sup>{38,46}.0<sup>{40,44}.0<sup>{48,52}.0<sup>{9,61}.0<sup>{10,58}.0<sup>{16,57}.0<sup>{22,60}.0<sup>{51,55}.0<sup>{56,59}]henhexaconta-1(27),2,6(61),7,9,11,13,15(53),16(57),17,19,21(56),22(60),23,25,28(36),33(41),34,37,39,42,44,46,48(52),49,51(55),58-heptacosaeen-54-yl)phenyl]ethyl)carbamoyl)propanoic acid</sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup>

O=C(O)CCC(=O)NCCc1ccc(c1)C%28(c2ccc(CCNC(=O)CC(=O)O)cc2)C%33%29C%14C%16=C%32C%19=C%31C=9c%18c3C%34=C7c4c3c%17c%15c%23c4C=C%22C=8C6=C%21c%25c5c%13C=%12C%11=C5C6=C(C7=8)C%10=C%34C=9C(=C%10%11)C=%30C=%12C(C%27c%13c%26C(C=%20C%14=C(C%15C%16c%17c%18%19)C=%24C=%20C(=C%21C=%22C%23=%24)c%25%26)C%27%28%29)C(C=%30%31)=C%32%33

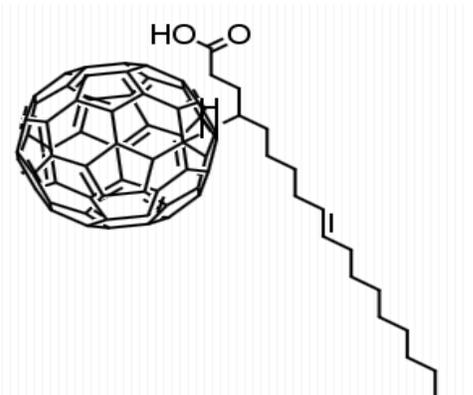
5



6-((hentriacontacyclo[14.12.31.1<sup>{21,34}.0<sup>{2,10}.0<sup>{3,31}.0<sup>{4,9}.0<sup>{5,33}.0<sup>{6,35}.0<sup>{7,48}.0<sup>{8,50}.0<sup>{11,51}.0<sup>{12,28}.0<sup>{13,52}.0<sup>{14,58}.0<sup>{15,27}.0<sup>{17,25}.0<sup>{18,41}.0<sup>{19,24}.0<sup>{20,39}.0<sup>{22,32}.0<sup>{23,30}.0<sup>{26,29}.0<sup>{36,47}.0<sup>{37,45}.0<sup>{40,44}.0<sup>{42,59}.0<sup>{43,56}.0<sup>{46,55}.0<sup>{49,54}.0<sup>{53,57}.0<sup>{38,60}]hexaconta-1(28),2(10),3(31),4(9),5(33),6(35),7(48),12,14(58),15,17(25),18,20,22(32),23,26,29,34(60),36(47),37(45),38,40,42(59),43,46(55),52,56-heptacosaeen-50-yl]amino)hexanoic acid</sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup>

O=C(O)CCCCCNC%31%26C%29C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%30c7c6c%28C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%27C(=C%19C=%20%21)C%22=C(C=%27C(C=%23%24)C%25%26)C%31c%28c%29%30

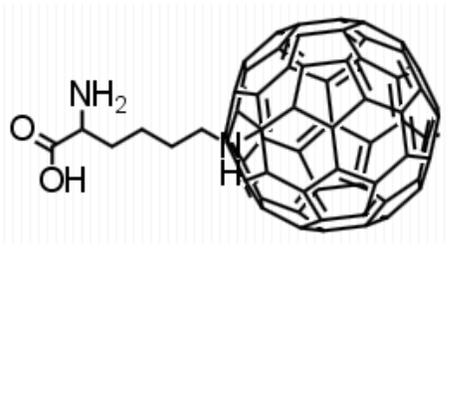
6



(9E)-4-((hentriacontacyclo[14.12.31.1<sup>{21,34}.0<sup>{2,10}.0<sup>{3,31}.0<sup>{4,9}.0<sup>{5,33}.0<sup>{6,35}.0<sup>{7,48}.0<sup>{8,50}.0<sup>{11,51}.0<sup>{12,28}.0<sup>{13,52}.0<sup>{14,58}.0<sup>{15,27}.0<sup>{17,25}.0<sup>{18,41}.0<sup>{19,24}.0<sup>{20,39}.0<sup>{22,32}.0<sup>{23,30}.0<sup>{26,29}.0<sup>{36,47}.0<sup>{37,45}.0<sup>{40,44}.0<sup>{42,59}.0<sup>{43,56}.0<sup>{46,55}.0<sup>{49,54}.0<sup>{53,57}.0<sup>{38,60}]hexaconta-1(28),2(10),3(31),4(9),5(33),6(35),7(48),12,14(58),15,17(25),18,20,22(32),23,26,29,34(60),36(47),37(45),38,40,42(59),43,46(55),52,56-heptacosaeen-50-yl]amino)octadec-9-enoic acid</sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup>

O=C(O)CCC(CCCC\C=C\CCCCC)NC%31%26C%29C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%30c7c6c%28C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%27C(=C%19C=%20%21)C%22=C(C=%27C(C=%23%24)C%25%26)C%31c%28c%29%30

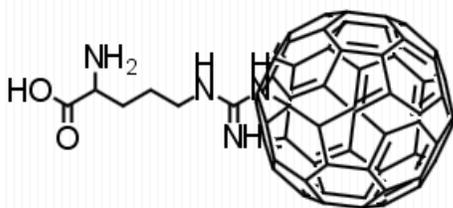
7



2-amino-6-((hentriacontacyclo[14.12.31.1<sup>{21,34}.0<sup>{2,10}.0<sup>{3,31}.0<sup>{4,9}.0<sup>{5,33}.0<sup>{6,35}.0<sup>{7,48}.0<sup>{8,50}.0<sup>{11,51}.0<sup>{12,28}.0<sup>{13,52}.0<sup>{14,58}.0<sup>{15,27}.0<sup>{17,25}.0<sup>{18,41}.0<sup>{19,24}.0<sup>{20,39}.0<sup>{22,32}.0<sup>{23,30}.0<sup>{26,29}.0<sup>{36,47}.0<sup>{37,45}.0<sup>{40,44}.0<sup>{42,59}.0<sup>{43,56}.0<sup>{46,55}.0<sup>{49,54}.0<sup>{53,57}.0<sup>{38,60}]hexaconta-1(28),2(10),3(31),4(9),5(33),6(35),7(48),12,14(58),15,17(25),18,20,22(32),23,26,29,34(60),36(47),37(45),38,40,42(59),43,46(55),52,56-heptacosaeen-50-yl]amino)hexanoic acid</sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup></sup>

O=C(O)C(N)CCCCNC%31%26C%29C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%30c7c6c%28C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%27C(=C%19C=%20%21)C%22=C(C=%27C(C=%23%24)C%25%26)C%31c%28c%29%30

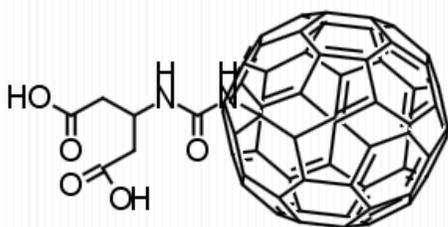
8



2-amino-5-(3-{hentriacontacyclo [14.12.31.1<sup>{21, 34}</sup>.0<sup>{2,10}</sup>.0<sup>{3,31}</sup>.0<sup>{4,9}</sup>.0<sup>{5,33}</sup>.0<sup>{6,35}</sup>.0<sup>{7,48}</sup>.0<sup>{8,50}</sup>.0<sup>{11,51}</sup>.0<sup>{12,28}</sup>.0<sup>{13,52}</sup>.0<sup>{14,58}</sup>.0<sup>{15,27}</sup>.0<sup>{17,25}</sup>.0<sup>{18,41}</sup>.0<sup>{19,24}</sup>.0<sup>{20,39}</sup>.0<sup>{22,32}</sup>.0<sup>{23,30}</sup>.0<sup>{26,29}</sup>.0<sup>{36,47}</sup>.0<sup>{37,45}</sup>.0<sup>{40,44}</sup>.0<sup>{42,59}</sup>.0<sup>{43,56}</sup>.0<sup>{46,55}</sup>.0<sup>{49,54}</sup>.0<sup>{53,57}</sup>.0<sup>{38,60}}</sup>h exaconta-1(28),2(10),3(31),4(9),5(33),6(35),7(48),12,14(58),15,17(25),18,20,22(32),23,26,29,34(60),36(47),37(45),38,40,42(59),43,46(55),52,56-heptacosaen-50-yl} carbamimidamide)pentanoic acid

O=C(O)C(N)CCCNC(=N)NC  
%31%26C%29C5C3=C%25C  
=%23C%17=C4C=2c%16c1c  
%15c%14C%12=C1C=%10C  
=2C=9C(=C34)C5=C8c%30c7  
c6c%28C%22=C%21C6=C%  
13C=%11C7=C8C=9C=%10C  
=%11C%12=C%13C=%20c%  
14c%19c%18c%15c(c%16%1  
7)C%24=C%18C=%27C(=C%  
19C=%20%21)C%22=C(C=%  
27C(C=%23%24)C%25%26)  
C%31c%28c%29%30

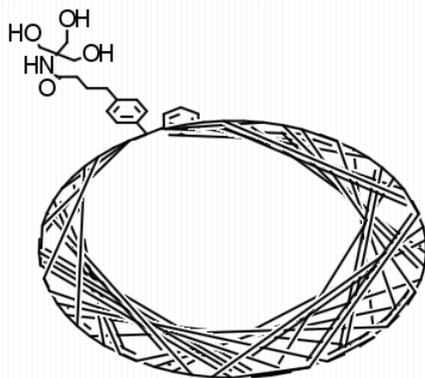
9



3-[(3-{hentriacontacyclo[14.12.31.1<sup>{21,34}</sup>.0<sup>{2,10}</sup>.0<sup>{3,31}</sup>.0<sup>{4,9}</sup>.0<sup>{5,33}</sup>.0<sup>{6,35}</sup>.0<sup>{7,48}</sup>.0<sup>{8,50}</sup>.0<sup>{11,51}</sup>.0<sup>{12,28}</sup>.0<sup>{13,52}</sup>.0<sup>{14,58}</sup>.0<sup>{15,27}</sup>.0<sup>{17,25}</sup>.0<sup>{18,41}</sup>.0<sup>{19,24}</sup>.0<sup>{20,39}</sup>.0<sup>{22,32}</sup>.0<sup>{23,30}</sup>.0<sup>{26,29}</sup>.0<sup>{36,47}</sup>.0<sup>{37,45}</sup>.0<sup>{40,44}</sup>.0<sup>{42,59}</sup>.0<sup>{43,56}</sup>.0<sup>{46,55}</sup>.0<sup>{49,54}</sup>.0<sup>{53,57}</sup>.0<sup>{38,60}}</sup>h exaconta-1(28),2(10),3(31),4(9),5(33),6(35),7(48),12,14(58),15,17(25),18,20,22(32),23,26,29,34(60),36(47),37(45),38,40,42(59),43,46(55),52,56-heptacosaen-50-yl} carbamoyl)amino]pentanedioic acid

O=C(O)CC(CC(=O)O)NC(=O)NC  
%31%26C%29C5C3=C%25C  
=23C%17=C4C=2c%16c1c  
%15c%15c%14C%12=C1C=%10C  
C=2C=9C(=C34)C5=C8c%30  
c7c6c%28C%22=C%21C6=C  
%13C=%11C7=C8C=9C=%10C  
=%11C%12=C%13C=%20c%  
14c%19c%18c%15c(c%16%1  
7)C%24=C%18C=%27C(=C%  
19C=%20%21)C%22=C(C=%  
27C(C=%23%24)C%25%26)  
6)C%31c%28c%29%30

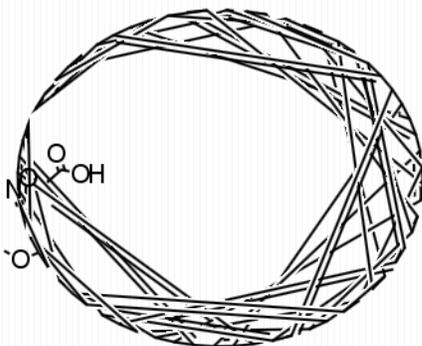
10



N-[1,3-dihydroxy-2-(hydroxymethyl)propan-2-yl]-4-(4-{54-phenyldotriacontacyclo [13.11.27.5<sup>{6,12}</sup>.1<sup>{4,31}</sup>.1<sup>{17,21}</sup>.1<sup>{19,26}</sup>.0<sup>{2,29}</sup>.0<sup>{3,24}</sup>.0<sup>{4,31}</sup>.0<sup>{5,23}</sup>.0<sup>{7,32}</sup>.0<sup>{8,42}</sup>.0<sup>{11,43}</sup>.0<sup>{13,45}</sup>.0<sup>{14,47}</sup>.0<sup>{18,53}</sup>.0<sup>{20,25}</sup>.0<sup>{27,50}</sup>.0<sup>{28,36}</sup>.0<sup>{30,34}</sup>.0<sup>{33,41}</sup>.0<sup>{35,39}</sup>.0<sup>{37,49}</sup>.0<sup>{38,46}</sup>.0<sup>{40,44}</sup>.0<sup>{48,52}</sup>.0<sup>{9,61}</sup>.0<sup>{10,58}</sup>.0<sup>{16,57}</sup>.0<sup>{22,60}</sup>.0<sup>{51,55}</sup>.0<sup>{56,59}</sup>}]henhexaconta-1(27),2,6(61),7,9,11,13,15(53),16(57),17,19,21(56),22(60),23,25,28(36),33(41),34,37,39,42,44,46,48(52),49,51(55),58-heptacosaen-54-yl}phenyl)butanamide

OCC(CO)(CO)NC(=O)CCCc1ccc(cc1)C%28(c2cccc2)C%33%29C%14C%16=C%32C%19=C%31C=9c%18c3C%34=C7c4c3c%17c%15c%23c4C=%22C=8C6=C%21c%25c5c%13C=%12C%11=C5C6=C(C7=8)C%10=C%34C=9C(=C%10%11)C=%30C=%12C(C%27%13c%26C(=C%20C%14=C(C%15=C%16c%17c%18%19)C=%24C=%20C(=C%21C=%22C%23=%24)c%25%26)C%27%28%29)C(C=%30%31)=C%32%33

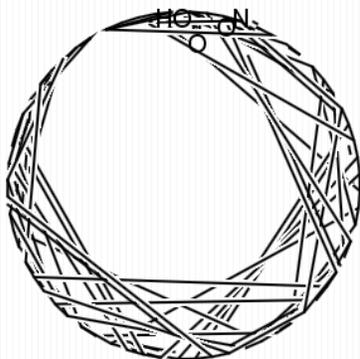
11



2-(((37Z)-35-methoxydotriacontacyclo[9.8.44.1<sup>{2,6}</sup>.0<sup>{3,21}</sup>.0<sup>{4,53}</sup>.0<sup>{5,55}</sup>.0<sup>{7,16}</sup>.0<sup>{8,56}</sup>.0<sup>{9,14}</sup>.0<sup>{10,57}</sup>.0<sup>{12,45}</sup>.0<sup>{13,31}</sup>.0<sup>{15,30}</sup>.0<sup>{18,29}</sup>.0<sup>{19,27}</sup>.0<sup>{20,25}</sup>.0<sup>{22,52}</sup>.0<sup>{23,50}</sup>.0<sup>{24,40}</sup>.0<sup>{26,39}</sup>.0<sup>{28,33}</sup>.0<sup>{32,44}</sup>.0<sup>{34,39}</sup>.0<sup>{34,43}</sup>.0<sup>{41,49}</sup>.0<sup>{42,47}</sup>.0<sup>{46,63}</sup>.0<sup>{48,61}</sup>.0<sup>{51,60}</sup>.0<sup>{54,59}</sup>.0<sup>{58,62}</sup>.0<sup>{17,64}</sup>}]tetrahexaconta-1(19),2,4,6,8(56),9,11,13,15,17(64),18(29),20(25),21,23,28(33),30,32(44),41(49),42(47),45,48(61),50,52,54,57,59,62-heptacosaen-37-ylidene]amino)oxy]acetic acid

O=C(O)CO\N=C%30\CC%25%31C%12C=%14C=%15C%29C%17=C%28C%20=C%27C=7c%19c1C%32=C5c2c1c%18c%16c%21c2C=%22C=6C4=C%23c%13c3c%11C=%10C9=C3C4=C(C5=6)C8=C%32C=7C(=C89)C=C%26C=%10C(C%25c%11c%12c%13C=%24C=%14C(C=%15C%16=C%17c%18c%19%20)=C%21C=%22C%23=%24)C(C=%26%27)=C%28C%29%31C(OC)C%30

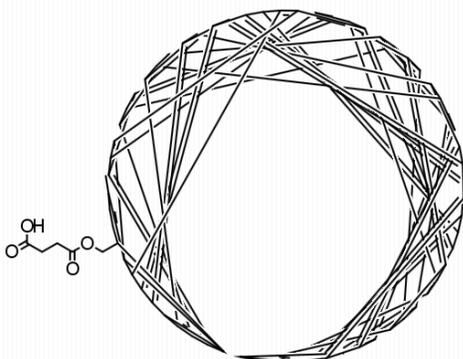
12



2-(((31E)-dotriacontacyclo[15.12.32.1<sup>2</sup>.6].1<sup>4</sup>.19].1<sup>22</sup>.52].0<sup>1</sup>.34].0<sup>3</sup>.28].0<sup>5</sup>.18].0<sup>7</sup>.16].0<sup>8</sup>.13].0<sup>10</sup>.34].0<sup>11</sup>.36].0<sup>12</sup>.56].0<sup>14</sup>.57].0<sup>15</sup>.60].0<sup>16</sup>.24].0<sup>17</sup>.61].0<sup>18</sup>.23.50].0<sup>19</sup>.25.48].0<sup>20</sup>.27.47].0<sup>21</sup>.29.45].0<sup>22</sup>.35.44].0<sup>23</sup>.37.55].0<sup>24</sup>.38.43].0<sup>25</sup>.39.54].0<sup>26</sup>.40.51].0<sup>27</sup>.41.49].0<sup>28</sup>.42.46].0<sup>29</sup>.53.58].0<sup>30</sup>.9.64].0<sup>31</sup>.26.63].0<sup>32</sup>.59.62]]tetrahexaconta-3,5(18),6(64),7(16),8,11(36),12,14,17(61),19,21,23,25(48),26(63),27,35(44),37,39,41(49),42,46,50,52(62),53(58),54,56,59-heptacosaeen-31-ylidene]amino}oxy)acetic acid

O=C(O)CO\N=C%30/CCC%26%32C%18=C5C4C%31c%29c3c2c1c%28C%24=C%23C1=C%13C=%11C2=C9C3=C4C8=C5C=%17C=7c%16c6c%15c%14C%12=C6C=%10C=7C8=C9C=%10C=%11C%12=C%13C=%22c%14c%21c%20c%15c%19c%16C=%17C%18=C%25C%19=C%20C=%27C(=C%21C=%22%23)C%24=C(C=%27C%25%26)C(c%28%29)C%31%32C%30

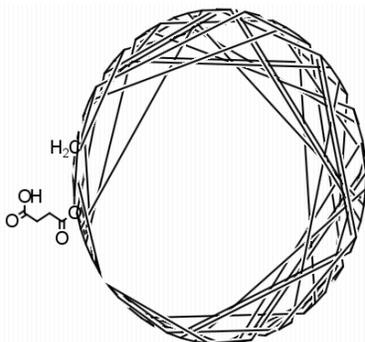
13



4-((34-methyl-dotriacontacyclo[16.12.33.1<sup>29</sup>.40].0<sup>1</sup>.35].0<sup>2</sup>.28].0<sup>3</sup>.25].0<sup>4</sup>.23].0<sup>5</sup>.35].0<sup>6</sup>.21].0<sup>7</sup>.36].0<sup>8</sup>.19].0<sup>9</sup>.17].0<sup>10</sup>.37].0<sup>11</sup>.39].0<sup>12</sup>.16].0<sup>13</sup>.41].0<sup>14</sup>.59].0<sup>15</sup>.62].0<sup>16</sup>.51].0<sup>17</sup>.2.50].0<sup>18</sup>.24.48].0<sup>19</sup>.26.46].0<sup>20</sup>.27.44].0<sup>21</sup>.30.38].0<sup>22</sup>.42.58].0<sup>23</sup>.45.57].0<sup>24</sup>.47.55].0<sup>25</sup>.49.54].0<sup>26</sup>.52.63].0<sup>27</sup>.53.61].0<sup>28</sup>.56.60].0<sup>29</sup>.43.64]]tetrahexaconta-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),32,40(64),42,44,46,49(54),51,53(61),55,57,59,62-octa-cosaen-31-yl)methoxy)-4-oxobutanoic acid

O=C(O)CCC(=O)OCC%26=CC(C)C%32%27C%30C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C=%28C(C=%23%24)C%25%26%27)C%32c%29c%30%31

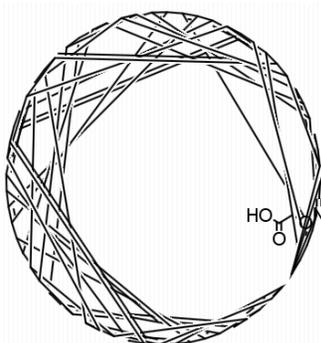
14



4-{dotriacontacyclo[18.16.23.3<sup>2</sup>.11].1<sup>5</sup>.42].1<sup>24</sup>.49].0<sup>3</sup>.38].0<sup>4</sup>.41].0<sup>5</sup>.51].0<sup>6</sup>.53].0<sup>7</sup>.10.55].0<sup>8</sup>.12.35].0<sup>9</sup>.13.56].0<sup>10</sup>.14.58].0<sup>11</sup>.15.34].0<sup>12</sup>.16.32].0<sup>13</sup>.17.59].0<sup>14</sup>.18.30].0<sup>15</sup>.19.27].0<sup>16</sup>.21.25].0<sup>17</sup>.22.57].0<sup>18</sup>.23.54].0<sup>19</sup>.26.44].0<sup>20</sup>.28.43].0<sup>21</sup>.29.40].0<sup>22</sup>.31.39].0<sup>23</sup>.33.37].0<sup>24</sup>.44.49].0<sup>25</sup>.6.64].0<sup>26</sup>.8.63].0<sup>27</sup>.36.62].0<sup>28</sup>.50.61].0<sup>29</sup>.52.60]]tetrahexaconta-1,3,5(61),6(64),7,9(53),10(55),11,13,15(34),16(32),17,19,21,23(54),25,27,29(40),30,33(37),35,38,41,51,56,58,62-heptacosaeen-47-yloxy)-4-oxobutanoic acid

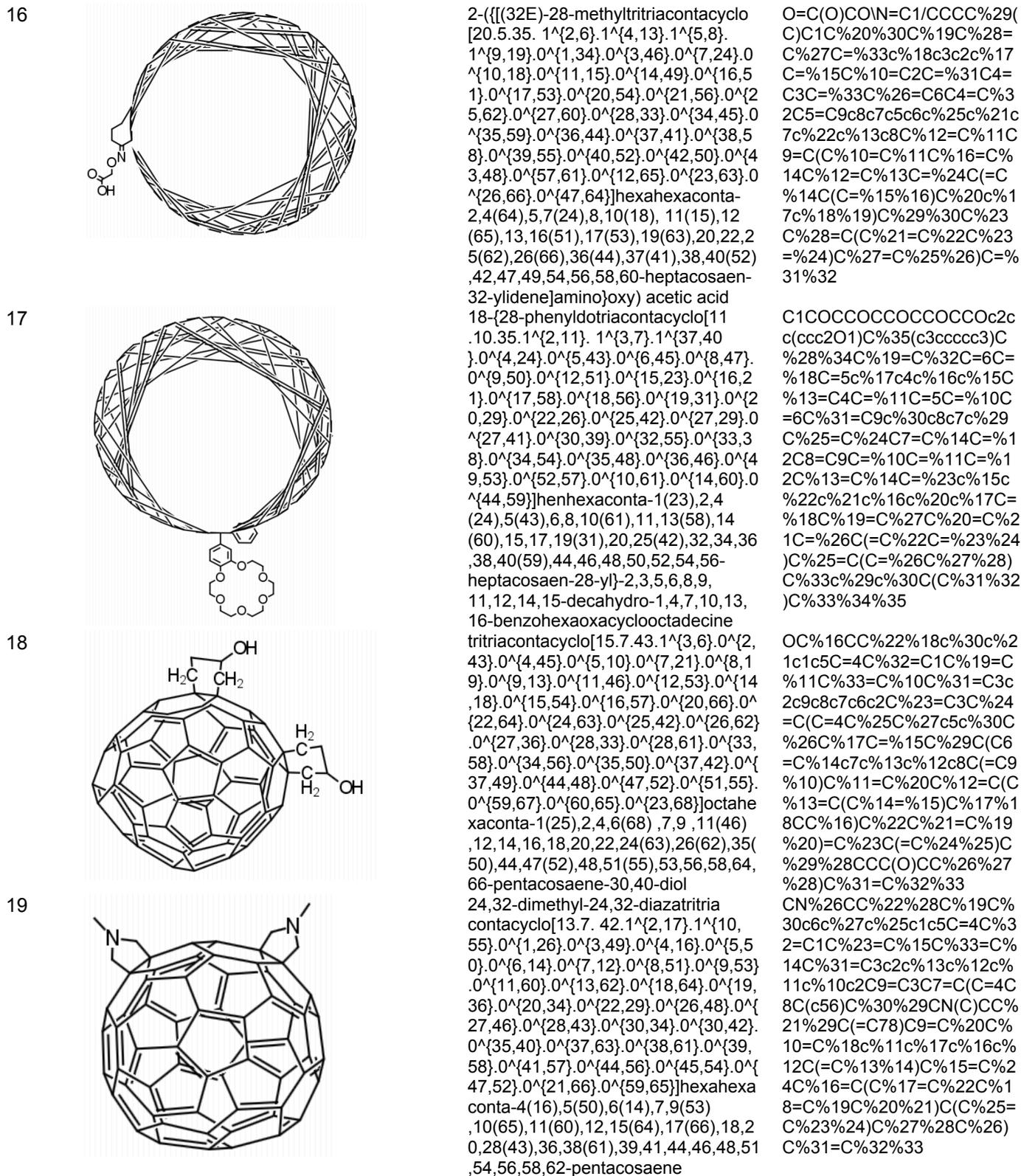
O=C(O)CCC(=O)OC%29CC%25%31C%10C=%16C=%15C%30C=%28C=%14c%32c%13c2c%12C%22=C1C=5C4=C3c(c12)c%32C%27=C3C%26=C8C4=C7C=5C%23=C%11C=6c%24c9C(C=67)=C8C(C%25c9c%10c%21c%24c%17=C%11C(C=%18c%12c%19c%13C=%14C=%15C=%20C=%16C%21=C%17C=%18C%19=%20)=C%22%23)C%26=C(C%27=%28)C%30%31CC%29

15

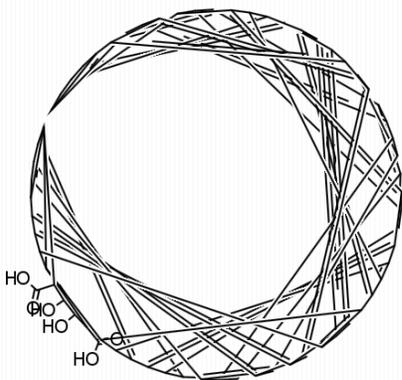


2-(((31Z)-dotriacontacyclo[15.12.32.1<sup>2</sup>.6].1<sup>4</sup>.19].1<sup>22</sup>.52].0<sup>1</sup>.34].0<sup>3</sup>.28].0<sup>5</sup>.18].0<sup>7</sup>.16].0<sup>8</sup>.13].0<sup>10</sup>.34].0<sup>11</sup>.36].0<sup>12</sup>.56].0<sup>14</sup>.57].0<sup>15</sup>.60].0<sup>16</sup>.24].0<sup>17</sup>.61].0<sup>18</sup>.23.50].0<sup>19</sup>.25.48].0<sup>20</sup>.27.47].0<sup>21</sup>.29.45].0<sup>22</sup>.35.44].0<sup>23</sup>.37.55].0<sup>24</sup>.38.43].0<sup>25</sup>.39.54].0<sup>26</sup>.40.51].0<sup>27</sup>.41.49].0<sup>28</sup>.42.46].0<sup>29</sup>.53.58].0<sup>30</sup>.9.64].0<sup>31</sup>.26.63].0<sup>32</sup>.59.62]]tetrahexaconta-3,5(18),6(64),7(16),8,11(36),12,14,17(61),19,21,23,25(48),26(63),27,32,35(44),37,39,41(49),42,46,50,52(62),53(58),54,56,59-octacosaeen-31-ylidene]amino}oxy)acetic acid

O=C(O)CO\N=C%30/C=CC%26%32C%18=C5C4C%31c%29c3c2c1c%28C%24=C%23C1=C%13C=%11C2=C9C3=C4C8=C5C=%17C=7c%16c6c%15c%14C%12=C6C=%10C=7C8=C9C=%10C=%11C%12=C%13C=%22c%14c%21c%20c%15c%19c%16C=%17C%18=C%25C%19=C%20C=%27C(=C%21C=%22%23)C%24=C(C=%27C%25%26)C(c%28%29)C%31%32C%30



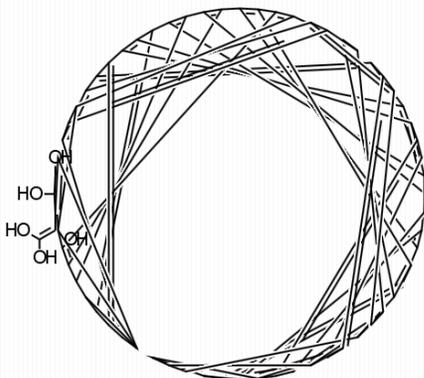
20



32,33-dihydroxydotriacontacyclo[15.12.32.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]tetrahexacont-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nona-

O=C(O)C%26=C(O)C(O)=C(C(=O)O)C%32=C%27C%30C5C3=C%25C=%23C%17=C4C=C1c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C(=C%23%24)C%25%26%27)C%32c%29c%30%31

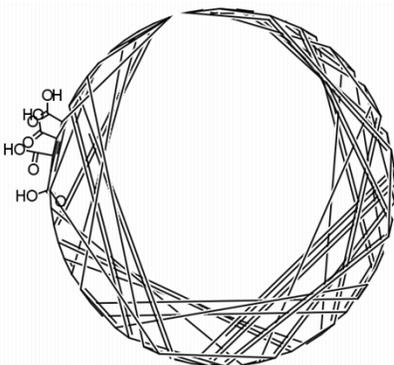
21



1-{32,33-dihydroxydotriacontacyclo[15.12.32.1<sup>{2,6}</sup>.1<sup>{4,19}</sup>.1<sup>{22,52}</sup>.0<sup>{1,34}</sup>.0<sup>{3,28}</sup>.0<sup>{5,18}</sup>.0<sup>{7,16}</sup>.0<sup>{8,13}</sup>.0<sup>{10,34}</sup>.0<sup>{11,36}</sup>.0<sup>{12,56}</sup>.0<sup>{14,57}</sup>.0<sup>{15,60}</sup>.0<sup>{20,24}</sup>.0<sup>{21,61}</sup>.0<sup>{23,50}</sup>.0<sup>{25,48}</sup>.0<sup>{27,47}</sup>.0<sup>{29,45}</sup>.0<sup>{35,44}</sup>.0<sup>{37,55}</sup>.0<sup>{38,43}</sup>.0<sup>{39,54}</sup>.0<sup>{40,51}</sup>.0<sup>{41,49}</sup>.0<sup>{42,46}</sup>.0<sup>{53,58}</sup>.0<sup>{9,64}</sup>.0<sup>{26,63}</sup>.0<sup>{59,62}</sup>]tetrahexacont-3,5(18),6(64),7(16),8,11(36),12,14,17(61),19,21,23,25(48),26(63),27,30,32,35(44),37,39,41(49),42,46,50,52(62),53(58),54,56,59-nonacosaeen-31-

O/C(O)=C(/O)C=%31C(O)=C(O)C%26%32C%18=C5C4C%30c%29c3c2c1c%28C%24=C%23C1=C%13C=%11C2=C9C3=C4C8=C5C=%17C=7c%16c6c%15c%14C%12=C6C=%10C=7C8=C9C=%10C=%11C%12=C%13C=%22c%14c%21c%20c%15c%19c%16C=%17C%18=C%25C%19=C%20C=%27C(=C%21C=%22%23)C%24=C(C(=C%27C%25%26)C(c%28%29)C%30%32C=%31

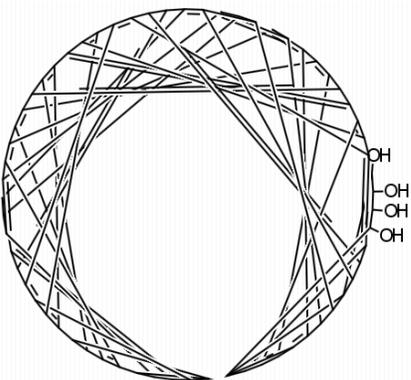
22



dotriacontacyclo[16.12.33.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]tetrahexacont-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nonacosaeene-31,32,33,34-

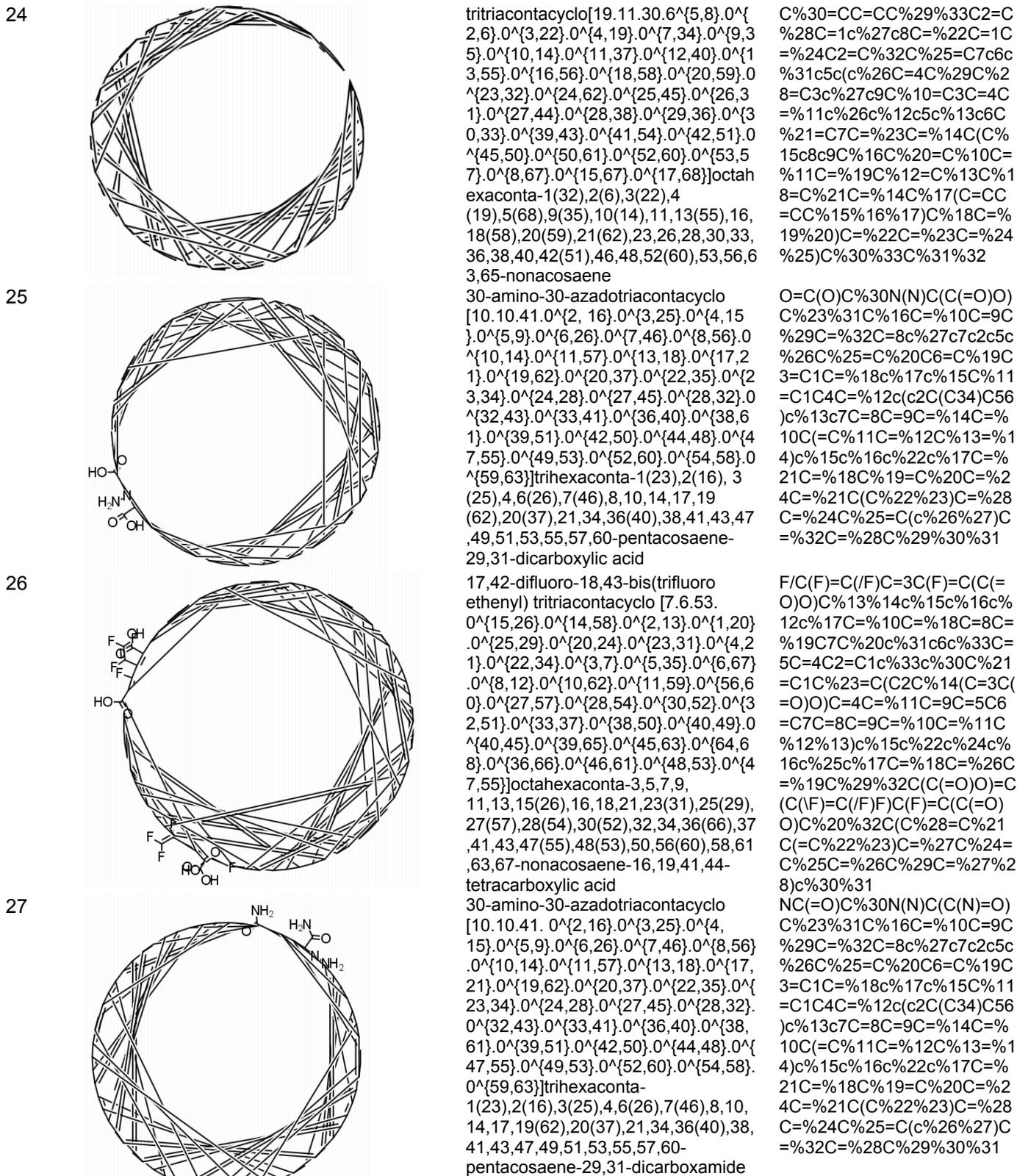
O=C(O)C%26=C(C(=O)O)C(C(=O)O)=C(C(=O)O)C%32%27C%30C5C3=C%25C%17=C4C=C1c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C(=C%28C(=C%23%24)C%25%26%27)C%32c%29c%30%31

23

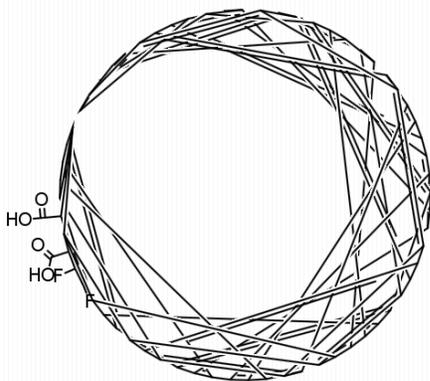


dotriacontacyclo[16.12.33.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]tetrahexacont-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nonacosaeene-31,32,33,34-tetrol

OC%26=C(O)C(O)=C(O)C%32%27C%30C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C(=C%28C(=C%23%24)C%25%26%27)C%32c%29c%30%31



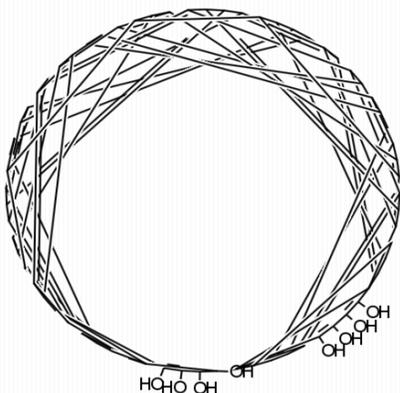
28



32,33-difluorodotriacontacyclo  
[16.12.33.1^{29,40}.0^{1,35}.  
.0^{2,28}.0^{3,25}.0^{4,23}.0^{5,35}.0  
^{6,21}.0^{7,36}.0^{8,19}.0^{9,17}.0^{10,37}.0^{11,39}.0^{12,16}.0^{13,41}.  
0^{14,59}.0^{15,62}.0^{20,51}.0^{22,  
50}.0^{24,48}.0^{26,46}.0^{27,44}.0^{30,38}.0^{42,58}.0^{45,57}.0^{47,55}.  
0^{49,54}.0^{52,63}.0^{53,61}.0^{56,  
60}.0^{43,64}]tetrahexaconta-  
3(25),4(23),6,8(19),9,11(39),12(16),1  
3(41),14,17,20,22(50),24(48),26,28,  
30(38),31,33,40(64),42,44,46,49(54),  
51,53(61),55,57,59,62-nona

O=C(O)C%26=C(F)C(F)=C(C(=O)O)C%32=27C%30C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C=%28C(C=%23%24)C%25%26%27)C%32c%29c%30%31

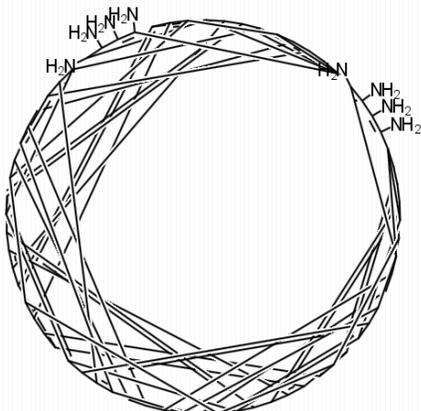
29



cosaene-31,34-dicarboxylic acid  
tritriacontacyclo[19.11.30.6^{5,8}.0^{2,6}.0^{3,22}.0^{4,19}.0^{7,34}.0^{9,35}.0^{10,14}.0^{11,37}.0^{12,40}.0^{13,55}.0^{16,56}.0^{18,58}.0^{20,59}.0^{23,32}.0^{24,62}.0^{25,45}.0^{26,31}.0^{27,44}.0^{28,38}.0^{29,36}.0^{30,33}.0^{39,43}.0^{41,54}.0^{42,51}.0^{45,50}.0^{50,61}.0^{52,60}.0^{53,57}.0^{8,67}.0^{15,67}.0^{17,68}]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),46,48,52(60),53,56,63,65-nonacosaeen-46,47,48,49,63,64,65,66-octol

OC%30=C(O)C(O)=C(O)C%29%33C2=C%28C=1c%27c8C=%22C=1C=%24C2=C%32C%25=C7c6c%31c5c(c%26C=4C%29C%28=C3c%27c9C%10=C3C=4C=%11c%26c%12c5c%13c6C%21=C7C=%23C=%14C(C%15c8c9C%16C%20=C%10C=%11C=%19C%12=C%13C%18=C%21C=%14C%17(C(O)=C(O)C(O)=C(O)C%15%16%17)C%18C=%19%20)C=%22C=%23C=%24%25)C%30%33C%31%32

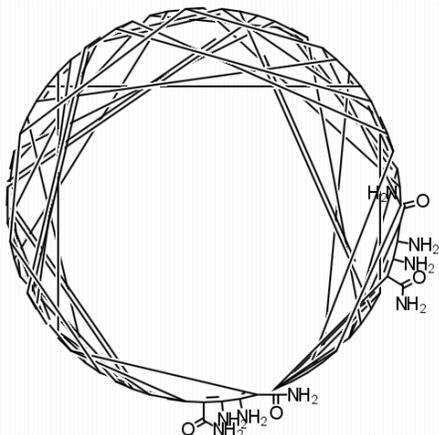
30



tritriacontacyclo[19.11.30.6^{5,8}.0^{2,6}.0^{3,22}.0^{4,19}.0^{7,34}.0^{9,35}.0^{10,14}.0^{11,37}.0^{12,40}.0^{13,55}.0^{16,56}.0^{18,58}.0^{20,59}.0^{23,32}.0^{24,62}.0^{25,45}.0^{26,31}.0^{27,44}.0^{28,38}.0^{29,36}.0^{30,33}.0^{39,43}.0^{41,54}.0^{42,51}.0^{45,50}.0^{50,61}.0^{52,60}.0^{53,57}.0^{8,67}.0^{15,67}.0^{17,68}]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),46,48,52(60),53,56,63,65-nonacosaeen-46,47,48,49,63,64,65,66-octamine

NC%30=C(N)C(N)=C(N)C%29%33C2=C%28C=1c%27c8C=%22C=1C=%24C2=C%32C%25=C7c6c%31c5c(c%26C=4C%29C%28=C3c%27c9C%10=C3C=4C=%11c%26c%12c5c%13c6C%21=C7C=%23C=%14C(C%15c8c9C%16C%20=C%10C=%11C=%19C%12=C%13C%18=C%21C=%14C%17(C(N)=C(N)C(N)=C(N)C%15%16%17)C%18C=%19%20)C=%22C=%23C=%24%25)C%30%33C%31%32

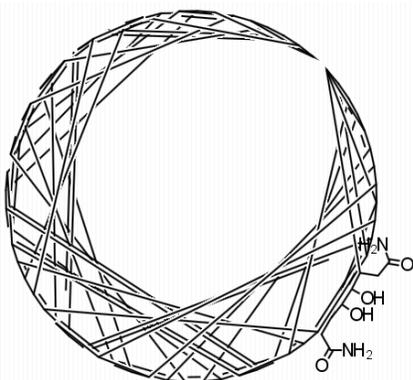
31



47,48,64,65-tetraaminotritriacontacyclo[19.11.30.6^{5,8}.0^{2,6}.0^{3,22}.0^{4,19}.0^{7,34}.0^{9,35}.0^{10,14}.0^{11,37}.0^{12,40}.0^{13,55}.0^{16,56}.0^{18,58}.0^{20,59}.0^{23,32}.0^{24,62}.0^{25,45}.0^{26,31}.0^{27,44}.0^{28,38}.0^{29,36}.0^{30,33}.0^{39,43}.0^{41,54}.0^{42,51}.0^{45,50}.0^{50,61}.0^{52,60}.0^{53,57}.0^{8,67}.0^{15,67}.0^{17,68}]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),46,48,52(60),53,56,63,65-nonacosaeen-46,49,63,66-tetracarboxamide

NC(=O)C%30=C(N)C(N)=C(C(N)=O)C%29%33C2=C%28C=1c%27c8C=%22C=1C=%24C2=C%32C%25=C7c6c%31c5c(c%26C=4C%29C%28=C3c%27c9C%10=C3C=4C=%11c%26c%12c5c%13c6C%21=C7C=%23C=%14C(C%15c8c9C%16C%20=C%10C=%11C=%19C%12=C%13C%18=C%21C=%14C%17(C(C(N)=O)=C(N)C(N)=C(C(N)=O)C%15%16%17)C%18C=%19%20)C=%22C=%23C=%24%25)C%30%33C%31%32

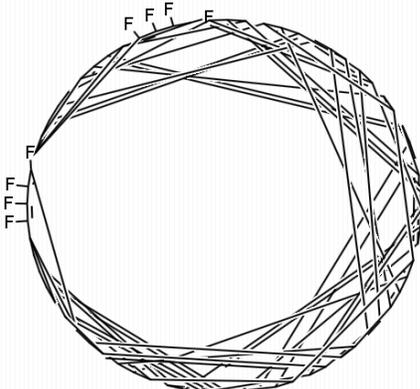
32



2-[31-(carbamoylmethyl)-32,33-dihydroxydotriacontacyclo [16.12.33.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]tetrahexaconta-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nonacosae-34-yl]acetamide

NC(=O)CC%26=C(O)C(O)=C(CC(N)=O)C%32%27C%30C5C3=C%25C=%23C%17=C4C=2c%16c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C=%28C(C=%23%24)C%25%26%27)C%32c%29c%30%31

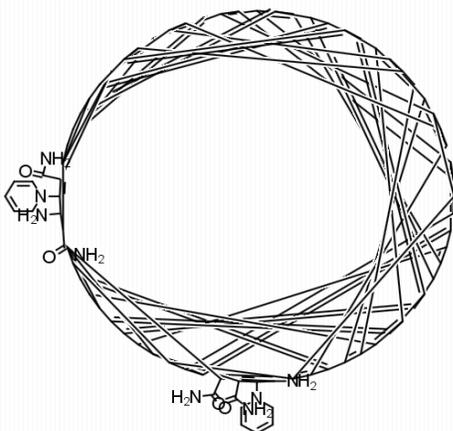
33



46,47,48,49,63,64,65,66-octafluorotritriacontacyclo[19.11.30.6<sup>{5,8}</sup>.0<sup>{2,6}</sup>.0<sup>{3,22}</sup>.0<sup>{4,19}</sup>.0<sup>{7,34}</sup>.0<sup>{9,35}</sup>.0<sup>{10,14}</sup>.0<sup>{11,37}</sup>.0<sup>{12,40}</sup>.0<sup>{13,55}</sup>.0<sup>{16,56}</sup>.0<sup>{18,58}</sup>.0<sup>{20,59}</sup>.0<sup>{23,32}</sup>.0<sup>{24,62}</sup>.0<sup>{25,45}</sup>.0<sup>{26,31}</sup>.0<sup>{27,44}</sup>.0<sup>{28,38}</sup>.0<sup>{29,36}</sup>.0<sup>{30,33}</sup>.0<sup>{39,43}</sup>.0<sup>{41,54}</sup>.0<sup>{42,51}</sup>.0<sup>{45,50}</sup>.0<sup>{50,61}</sup>.0<sup>{52,60}</sup>.0<sup>{53,57}</sup>.0<sup>{8,67}</sup>.0<sup>{15,67}</sup>.0<sup>{17,68}</sup>]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),46,48,52(60),53,56,63,65-nonacosae

FC%30=C(F)C(F)=C(F)C%29%33C2=C%28C=1c%27c8C=%22C=1C=%24C2=C%32C%25=C7c6c%31c5c(c%26C=4C%29C%28=C3c%27c9C%10=C3C=4C=%11c%26c%12c5c%13c6C%21=C7C=%23C=%14C(C%15c8c9C%16C%20=C%10C=%11C=%19C%12=C%13C%18=C%21C=%14C%17(C(F)=C(F)C(F)=C(F)C%15%16%17)C%18C=%19%20)C=%22C=%23C=%24%25)C%30%33C%31%32

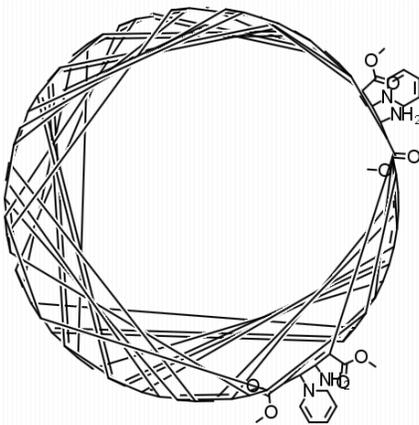
34



47,65-diamino-48,64-bis(1,2-dihydropyridin-1-yl)tritacontacyclo [19.11.30.6<sup>{5,8}</sup>.0<sup>{2,6}</sup>.0<sup>{3,22}</sup>.0<sup>{4,19}</sup>.0<sup>{7,34}</sup>.0<sup>{9,35}</sup>.0<sup>{10,14}</sup>.0<sup>{11,37}</sup>.0<sup>{12,40}</sup>.0<sup>{13,55}</sup>.0<sup>{16,56}</sup>.0<sup>{18,58}</sup>.0<sup>{20,59}</sup>.0<sup>{23,32}</sup>.0<sup>{24,62}</sup>.0<sup>{25,45}</sup>.0<sup>{26,31}</sup>.0<sup>{27,44}</sup>.0<sup>{28,38}</sup>.0<sup>{29,36}</sup>.0<sup>{30,33}</sup>.0<sup>{39,43}</sup>.0<sup>{41,54}</sup>.0<sup>{42,51}</sup>.0<sup>{45,50}</sup>.0<sup>{50,61}</sup>.0<sup>{52,60}</sup>.0<sup>{53,57}</sup>.0<sup>{8,67}</sup>.0<sup>{15,67}</sup>.0<sup>{17,68}</sup>]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),46,48,52(60),53,56,63,65-nonacosae

NC(=O)C%32=C(N)C(N1C=C(CC1)=C(C(N)=O)C%31%35C3=C%30C=2c%29c%10C=9C=2C=%26C3=C%34C%27=C8c7c%33c6c(c%28C=5C%31C%30=C4c%29c%11C%12=C4C=5C=%13c%28c%14c6c%15c7C%16=C8C%17=C(C=9C%18C%20c%10c%11C%19C%24=C%12C=%13C=%23C%14=C%15C%25=C%16C(=C%17%18)C%21(C(C(N)=O)=C(C(N)=C(C(N)=O)C%19%20%21)N%22C=CC=CC%22)C%25C=%23%24)C=%26%27)C%32%35C%33%34

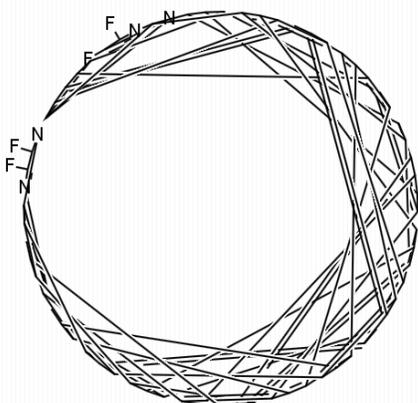
35



ene-46,49,63,66-tetracarboxamide 46,49,63,66-tetramethyl 47,65-diamino-48,64-bis(1,2-dihydropyridin-1-yl)tritacontacyclo [19.11.30.6<sup>{5,8}</sup>.0<sup>{2,6}</sup>.0<sup>{3,22}</sup>.0<sup>{4,19}</sup>.0<sup>{7,34}</sup>.0<sup>{9,35}</sup>.0<sup>{10,14}</sup>.0<sup>{11,37}</sup>.0<sup>{12,40}</sup>.0<sup>{13,55}</sup>.0<sup>{16,56}</sup>.0<sup>{18,58}</sup>.0<sup>{20,59}</sup>.0<sup>{23,32}</sup>.0<sup>{24,62}</sup>.0<sup>{25,45}</sup>.0<sup>{26,31}</sup>.0<sup>{27,44}</sup>.0<sup>{28,38}</sup>.0<sup>{29,36}</sup>.0<sup>{30,33}</sup>.0<sup>{39,43}</sup>.0<sup>{41,54}</sup>.0<sup>{42,51}</sup>.0<sup>{45,50}</sup>.0<sup>{50,61}</sup>.0<sup>{52,60}</sup>.0<sup>{53,57}</sup>.0<sup>{8,67}</sup>.0<sup>{15,67}</sup>.0<sup>{17,68}</sup>]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),46,48,52(60),53,56,63,65-nonacosae-46,49,63,66-tetracarboxylate

O=C(OC)C%32=C(N)C(N1C=C(CC1)=C(C(=O)OC)C%31%35C3=C%30C=2c%29c%10C=9C=2C=%26C3=C%34C%27=C8c7c%33c6c(c%28C=5C%31C%30=C4c%29c%11C%12=C4C=5C=%13c%28c%14c6c%15c7C%16=C8C%17=C(C=9C%18C%20c%10c%11C%19C%24=C%12C=%13C=%23C%14=C%15C%25=C%16C(=C%17%18)C%21(C(C(=O)OC)=C(C(N)=C(C(=O)OC)C%19%20%21)N%22C=CC=CC%22)C%25C=%23%24)C=%26%27)C%32%35C%33%34

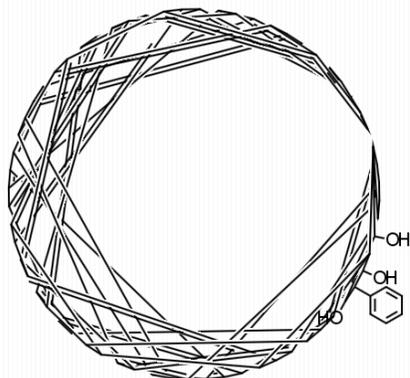
36



42,43,66,67-tetrafluoro-41,44,65,68-tetraaza tritriacontacyclo[9.9.41.6<sup>{3,16}</sup>.1<sup>{10,37}</sup>.0<sup>{2,28}</sup>.0<sup>{4,29}</sup>.0<sup>{5,13}</sup>.0<sup>{6,31}</sup>.0<sup>{7,12}</sup>.0<sup>{8,33}</sup>.0<sup>{9,35}</sup>.0<sup>{15,61}</sup>.0<sup>{17,59}</sup>.0<sup>{18,57}</sup>.0<sup>{19,22}</sup>.0<sup>{21,26}</sup>.0<sup>{23,56}</sup>.0<sup>{24,54}</sup>.0<sup>{25,51}</sup>.0<sup>{27,50}</sup>.0<sup>{30,49}</sup>.0<sup>{32,48}</sup>.0<sup>{34,46}</sup>.0<sup>{36,40}</sup>.0<sup>{38,58}</sup>.0<sup>{39,55}</sup>.0<sup>{40,45}</sup>.0<sup>{45,53}</sup>.0<sup>{47,52}</sup>.0<sup>{3,64}</sup>.0<sup>{14,64}</sup>.0<sup>{20,63}</sup>.0<sup>{60,62}</sup>]octahexaconta-1(20),4,6(31),7,9(35),10,12,15(61),16(63),17,19(22),21(26),23,25(51),27(50),28,30(49),32(48),33,37(62),38(58),41,43,47(52),53,56,59,65,67-nonacosane

FC%30=NC%33%32C=4C2=C1C%31c5c9C%10=C1C%11=C2C%28=C3c%12c%23C%25=C(C3=4)C%33C=%26c6c(c5c8c7c6C%27=C%29C%24=C%13C%20=C%29C7=C%19c8c9C%18=C%10C%14=C%11C%15=C%28c%12c%16c(C%13C%17%22N=C(F)C(F)=NC%21%22C(=C%14C%15C%16%17)C%18=C%19C%20%21)c%23C%24=C%25C=%26%27)C%31%32N=C%30F

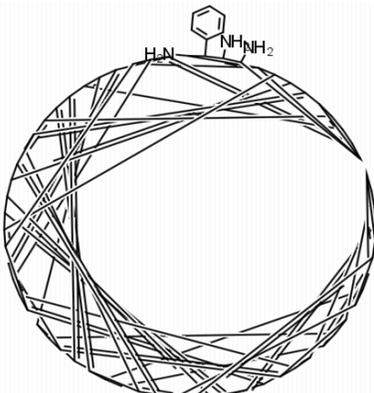
37



33-phenyldotriacontacyclo [16.12.33.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]tetrahexaconta-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nonacosane-31,32,34-triol

OC%27=C(O)C(c1cccc1)=C(O)C%33%28C%31C6C4=C%26C=%24C%18=C5C=3c%17c2c%16c%15C%13=C2C=%11C=3C=%10C(=C45)C6=C9c%32c8c7c%30C%23=C%22C7=C%14C=%12C8=C9C=%10C=%11C=%12C%13=C%14C=%21c%15c%20c%19c%16c(c%17%18)C%25=C%19C=%29C(=C%20C=%21%22)C%23=C(C=%29C(C=%24%25)C%26%27%28)C%33c%30c%31%32

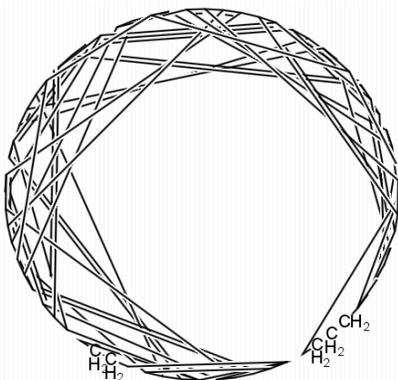
38



33-phenyldotriacontacyclo[16.12.33.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]tetrahexaconta-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nonacosane-31,32,34-triamine

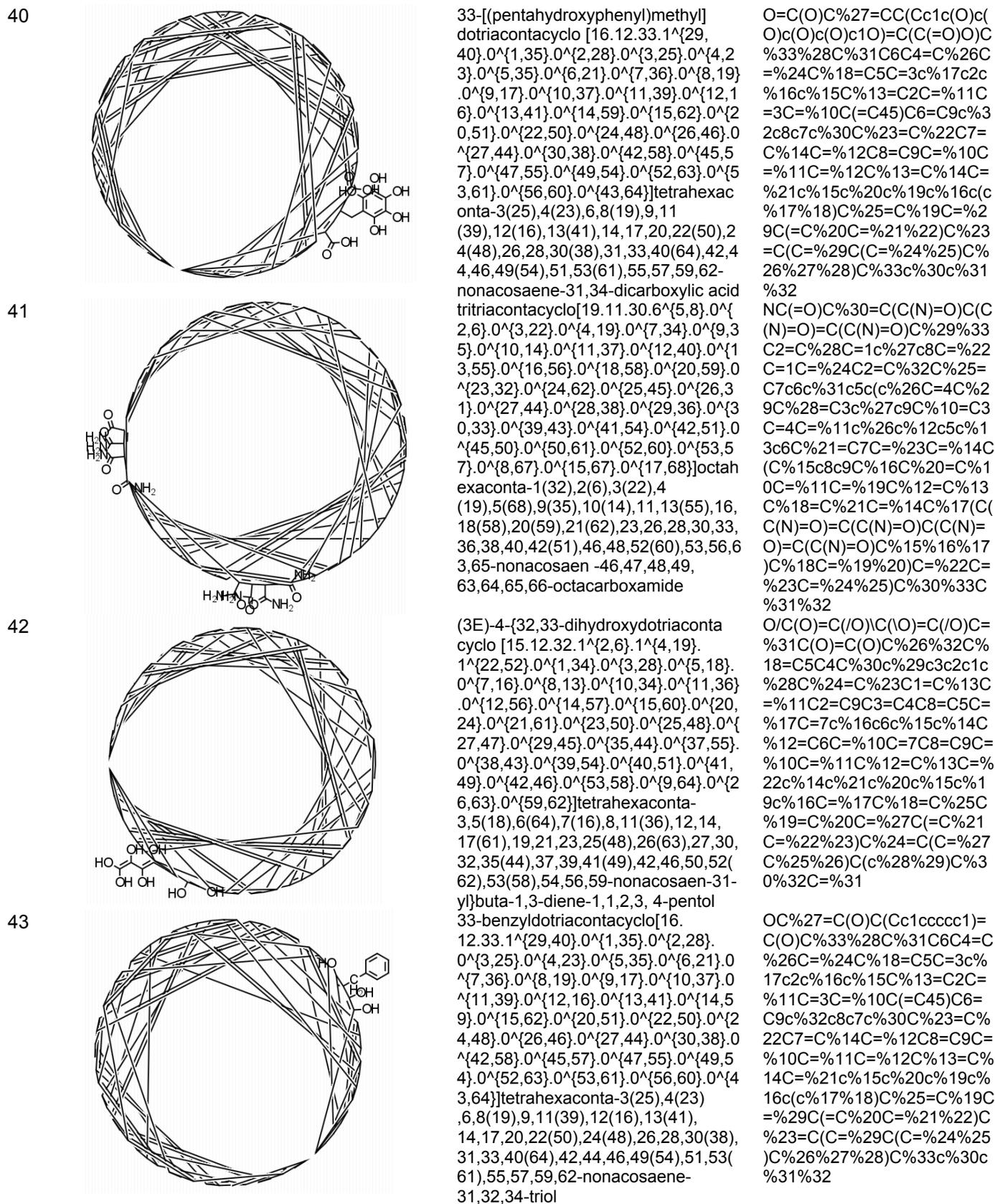
NC%27=C(N)C(c1cccc1)=C(N)C%33%28C%31C6C4=C%26C=%24C%18=C5C=3c%17c2c%16c%15C%13=C2C=%11C=3C=%10C(=C45)C6=C9c%32c8c7c%30C%23=C%22C7=C%14C=%12C8=C9C=%10C=%11C=%12C%13=C%14C=%21c%15c%20c%19c%16c(c%17%18)C%25=C%19C=%29C(=C%20C=%21%22)C%23=C(C=%29C(C=%24%25)C%26%27%28)C%33c%30c%31%32

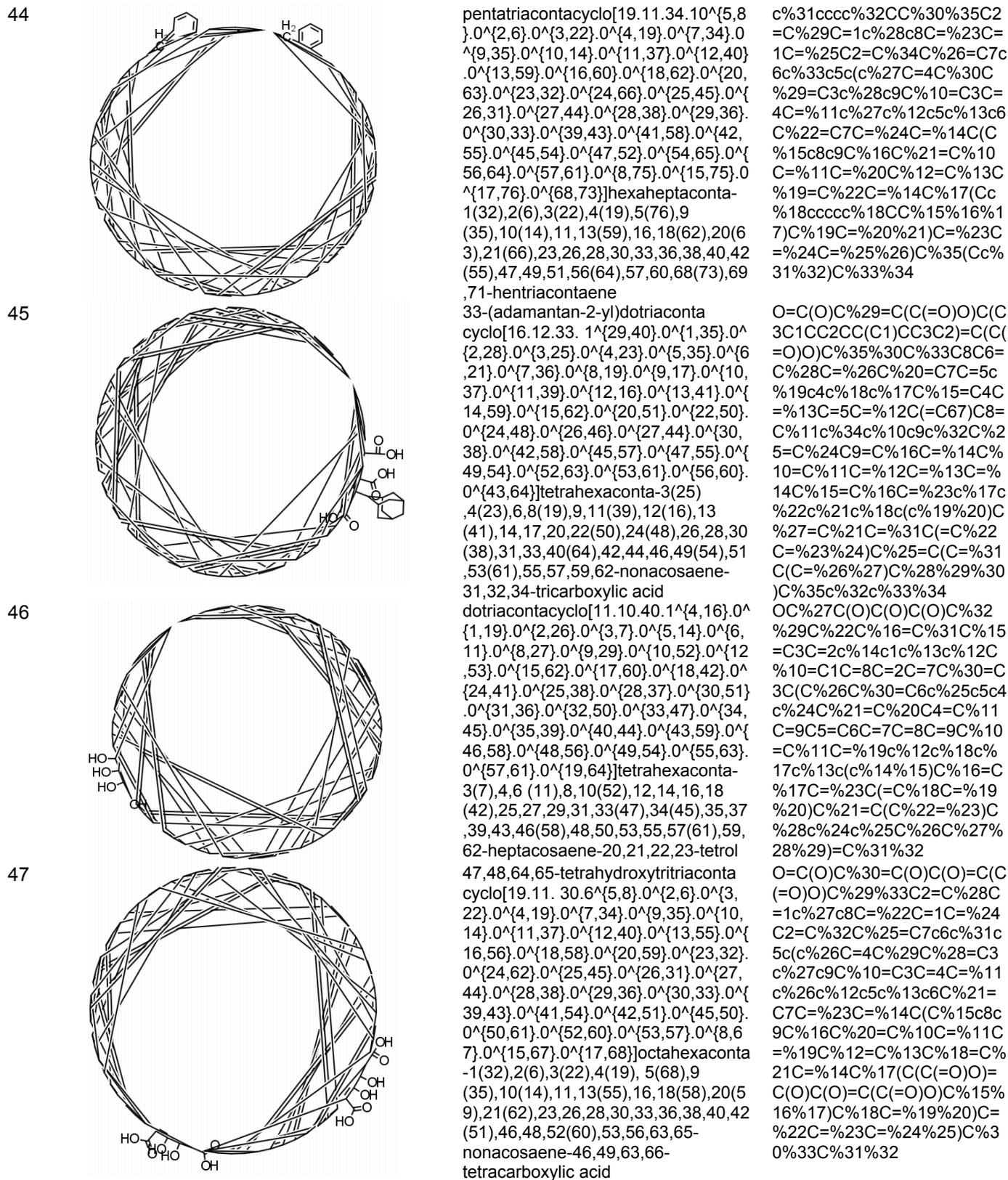
39

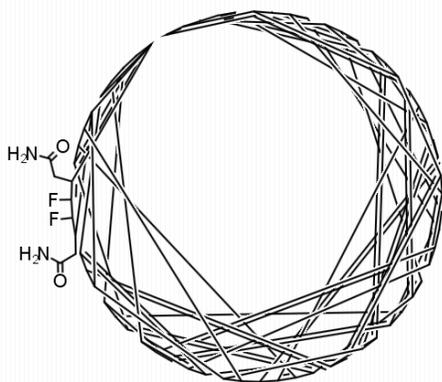


tritriacontacyclo[19.11.30.6<sup>{5,8}</sup>.0<sup>{2,6}</sup>.0<sup>{3,22}</sup>.0<sup>{4,19}</sup>.0<sup>{7,34}</sup>.0<sup>{9,35}</sup>.0<sup>{10,14}</sup>.0<sup>{11,37}</sup>.0<sup>{12,40}</sup>.0<sup>{13,55}</sup>.0<sup>{16,56}</sup>.0<sup>{18,58}</sup>.0<sup>{20,59}</sup>.0<sup>{23,32}</sup>.0<sup>{24,62}</sup>.0<sup>{25,45}</sup>.0<sup>{26,31}</sup>.0<sup>{27,44}</sup>.0<sup>{28,38}</sup>.0<sup>{29,36}</sup>.0<sup>{30,33}</sup>.0<sup>{39,43}</sup>.0<sup>{41,54}</sup>.0<sup>{42,51}</sup>.0<sup>{45,50}</sup>.0<sup>{50,61}</sup>.0<sup>{52,60}</sup>.0<sup>{53,57}</sup>.0<sup>{8,67}</sup>.0<sup>{15,67}</sup>.0<sup>{17,68}</sup>]octahexaconta-1(32),2(6),3(22),4(19),5(68),9(35),10(14),11,13(55),16,18(58),20(59),21(62),23,26,28,30,33,36,38,40,42(51),52(60),53,56-pentacosane

C%30CCCC%29%33C2=C%28C=1c%27c8C=%22C=1C=%24C2=C%32C%25=C7c6c%31c5c(c%26C=4C%29C%28=C3c%27c9C%10=C3C=4C=%11c%26c%12c5c%13c6C%21=C7C=%23C=%14C(C%15c8c9C%16C%20=C%10C=%11C=%19C%12=C%13C%18=C%15%16%17)C%18C=%19%20)C=%22C=%23C=%24%25)C%30%33C%31%32







2-[31-(carbamoylmethyl)-32,33-difluorodotriacontacyclo[16.12.33.1<sup>{29,40}</sup>.0<sup>{1,35}</sup>.0<sup>{2,28}</sup>.0<sup>{3,25}</sup>.0<sup>{4,23}</sup>.0<sup>{5,35}</sup>.0<sup>{6,21}</sup>.0<sup>{7,36}</sup>.0<sup>{8,19}</sup>.0<sup>{9,17}</sup>.0<sup>{10,37}</sup>.0<sup>{11,39}</sup>.0<sup>{12,16}</sup>.0<sup>{13,41}</sup>.0<sup>{14,59}</sup>.0<sup>{15,62}</sup>.0<sup>{20,51}</sup>.0<sup>{22,50}</sup>.0<sup>{24,48}</sup>.0<sup>{26,46}</sup>.0<sup>{27,44}</sup>.0<sup>{30,38}</sup>.0<sup>{42,58}</sup>.0<sup>{45,57}</sup>.0<sup>{47,55}</sup>.0<sup>{49,54}</sup>.0<sup>{52,63}</sup>.0<sup>{53,61}</sup>.0<sup>{56,60}</sup>.0<sup>{43,64}</sup>]]tetrahexaconta-3(25),4(23),6,8(19),9,11(39),12(16),13(41),14,17,20,22(50),24(48),26,28,30(38),31,33,40(64),42,44,46,49(54),51,53(61),55,57,59,62-nonacosaeen-34-yl]acetamide

NC(=O)CC%26=C(F)C(F)=C(CC(N)=O)C%32%27C%30C5C3=C%25C=%23C%17=C4C=2c%16c1c%15c%14C%12=C1C=%10C=2C=9C(=C34)C5=C8c%31c7c6c%29C%22=C%21C6=C%13C=%11C7=C8C=9C=%10C=%11C%12=C%13C=%20c%14c%19c%18c%15c(c%16%17)C%24=C%18C=%28C(=C%19C=%20%21)C%22=C(C=%28C(C=%23%24)C%25%26%27)C%32c%29c%30%31