

Supplementary Materials for

Research Progress of Natural Active Substances with Immunosuppressive Activity

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Table S1. Compounds 1–36 with Immunosuppressive Effects.

Number	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
1	Argyrolide G	Plant	<i>Artemisia argyi</i>	LPS stimulated in BV-2 microglial cells	5.3 μ M	/	/	[28]
2	8 α -acetoxy-3 β -chloro-1 α ,4 α -dihydroxyguai-9,11(13)-dien-6 α ,12-olide				3.2 μ M		/	
3	8 α -acetoxy-3 α -chloro-1 α ,4 β -dihydroxyguai-9,11(13)-dien-6 α ,12-olide				6.9 μ M		/	
4	8 α -acetoxy-3 β -chloro-1 α ,4 α -dihydroxyguai-10(14),11(13)-dien-6 α ,12-olide				4.2 μ M		/	
5	8 α -acetoxy-3 α -chloro-1 β ,2 β -epoxy-4 β ,10 α -dihydroxy-5 α ,7 α H-guai-11(13)-en-12,6 α -olide				22.2 μ M		/	
6	3 β -chloro-1 α ,2 α -epoxy-4 α ,10 α -dihydroxy-5 α ,7 α H-guai-11(13)-en-12,6 α -olide				6.4 μ M		/	
7	Tremutin A	Fungi	<i>Irpex lacteus</i>	ConA-induced T-cell proliferation	/	LPS-induced B-cells proliferation	22.4 μ M	[29]
8	Tremutin B				16.7 μ M		13.6 μ M	

9	Canin	Plant	<i>A. argyi</i>	anti-CD3/anti-CD28 stimulated spleen cells	2.7 μ M	/	/	[28]
10	<i>seco</i> -tanapartholide B				1.0 μ M	/	/	
11	<i>seco</i> -tanapartholide A				1.2 μ M	/	/	
12	Arteglinin A				1.9 μ M	/	/	
13	8-acetylartemisininolide				3.2 μ M	/	/	
14	Maydispenoid A	Fungi	<i>Bipolaris maydis</i>	anti-CD3/anti-CD28 stimulated spleen cells	5.28 μ M	/	/	[30]
15	Maydispenoid B				9.38 μ M		/	
16	Antroxazole A	Fungi	<i>Antrodiaella albocinnamo mea</i>	/	/	LPS-induced B-cells proliferation	16.3 μ M	[14]
17	(+)-aspersydowin A	Fungi	<i>Aspergillus sydowii</i>	anti-CD3/anti-CD28 stimulated spleen cells	>40 μ M	LPS-induced B-cells proliferation	10.9 μ M	[31]
18	(+)-aspersydowin B				>40 μ M		17.6 μ M	
19	(7S)-(+)-7-O-methylsydono				>40 μ M		13.4 μ M	
20	Parasubolide D	Plant	<i>Parasenecio albus</i>	LPS-induced spleen-cell proliferation	23.1 μ M	/	/	[32]
21	Parasubolide E				33.8 μ M	/	/	
22	Parasubolide L				26.6 μ M	/	/	
23	Steccherin A	Fungi	<i>Steccherinum ochraceum</i>	ConA-induced T-cell proliferation	>40 μ M	LPS-induced B-cells proliferation	26.3 μ M	[33]
24	Steccherin B				>40 μ M		>40 μ M	
25	Steccherin C				37.8 μ M		6.2 μ M	
26	Steccherin D				>40 μ M		16.1 μ M	
27	Soltorvum A	Plant	<i>Solanum torvum.</i>	ConA-induced T-cell proliferation	27.0 μ M	/	/	[34]
28	Soltorvum B				18.0 μ M	/	/	

29	Craterodoratin C	Fungi	<i>Craterellus odoratus</i>	ConA-induced T-cell proliferation	/	LPS-induced B-cells proliferation	12.62 μ M	[35]
30	Craterodoratin J				/		19.4 μ M	
31	Craterodoratin L				/		13.7 μ M	
32	Craterodoratin M				/		15.4 μ M	
33	Craterodoratin N				/		13.2 μ M	
34	Craterodoratin O				/		17.1 μ M	
35	Craterodoratin Q				31.5 μ M		/	
36	Craterodoratin S				/		22.6 μ M	

Table S2. Compounds 37–115 with Immunosuppressive Effects.

Number	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
37	Ineleganolide	Coral	<i>Sinularia scabra</i> and <i>Sinularia polydactyla</i>	ConA-induced	>50 μ M	LPS-induced	>50 μ M	[36]
38	Yonarolide			T-cell proliferation	>50 μ M	B-cells	>50 μ M	
39	Scabrolide A				>50 μ M	proliferation	>50 μ M	
40	Cinnacassioid G	Plant	<i>Cinnamomum cassia</i>	ConA-induced	/	/	/	[37]
41	Cinnacasol			T-cell proliferation	/	/	/	
42	3,5,10-O triacetyl-8- <i>O</i> -isobutanoyl-14- <i>O</i> -benzoylcyclomy rsinol	Plant	<i>Euphorbia</i> <i>kopetdaghi</i> Prokh	PHA-activated T-Cell proliferation	1.83 mg /mL	/	/	[38]
43	Xylarilongipin A	Fungi	<i>Xylaria longipes</i> HFG1018	ConA-induced T-cell proliferation	22.4 μ M	LPS-induced B-cells proliferation	22.4 μ M	[39]
44	Triptetifordin	Plant	<i>Ligularia fischeri</i>	human B	56.3 μ M	/	/	[40]
45	16 α ,17-dihydroxy-ent-kaur-20-al.			lymphoblast	13.3 μ M	/	/	
46	ent-2 β -hydroxymanool			HMy2.CIR cells	31.4 μ M	/	/	
47	Koilodenoid D	Plant	<i>Koilodepas</i> <i>hainanense</i>	ConA-induced T-cell proliferation	23.8 μ M	LPS-induced B-cells proliferation	10.2 μ M	[41]
48	Koilodenoid G				3.1 μ M		2.2 μ M	
49	ent-5 α ,2,15-dioxodolabr-3-ene-3,16-diol				0.8 μ M		0.3 μ M	
50	ent-5 α ,3,15-dioxodolabr-1,4(18)-diene-2,16-diol				30.5 μ M		4.7 μ M	
51	ent-16-nor-5 α ,13 α (methyl)-2-oxodolabra-3-en-3 -ol-15-oicacid				3.4 μ M		3.1 μ M	

52	Xylarinorditerpene B	Fungi	<i>Xylaria longipes</i> HFG1018	ConA-induced T-cell proliferation	11.1 μ M	LPS-induced B-cells proliferation	35.1 μ M	[42]
53	Xylarinorditerpene C				6.6 μ M		38.2 μ M	
54	Xylarinorditerpene D				21.1 μ M		51.8 μ M	
55	Xylarinorditerpene E				14.9 μ M		49.4 μ M	
56	Xylarinorditerpene I				1.0 μ M		16.1 μ M	
57	Xylarinorditerpene N				4.0 μ M		46 μ M	
58	14 α ,16-epoxy-18-norisopimar-7-en-4 α -ol				27.2 μ M		40 μ M	
59	Agatadiol				15.6 μ M		47.2 μ M	
60	Robustaditerpenes C	Fungi	<i>Ilyonectria robusta</i>	ConA-induced	/	LPS-induced	17.42 μ M	[43]
61	Robustaditerpenes E			T-cell proliferation	75.22 μ M	B-cells proliferation	/	
62	Scopariusicid I	Plant	<i>Isodon scoparius</i>	ConA-induced	10.1 μ M	/	/	[44]
63	Scopariusicid J			T-cell proliferation	9.4 μ M	/	/	
64	Scopariusicid L				16.3 μ M	/	/	
65	Scopariusic Acid	Plant	<i>Isodon scoparius</i>	ConA-induced T-cell proliferation	2.6 μ M	/	/	[46]
66	Ceforloid F	Plant	<i>Cephalotaxus fortunei</i> var. <i>alpina</i> and <i>C.</i> <i>sinensis</i>	ConA-induced T-cell proliferation	1.93 μ M	/	/	[45]
67	Xiguscabrolide H	Coral	<i>S. scabra</i> and <i>S.</i> <i>polydactyla</i>	ConA-induced T-cell proliferation	45.7 μ M	LPS-induced B-cells proliferation	44.1 μ M	[36]
68	10-epi-gyrosanolide E				>50 μ M		>50 μ M	
69	5-Epi-sinuleptolide				39.6 μ M		>50 μ M	
70	Norcembrene 5				>50 μ M		>50 μ M	
71	Scabrolide D				>50 μ M		>50 μ M	

72	Scabrolide G	Coral	<i>scabra</i> and <i>S. polydactyla</i>	ConA-induced T-cell proliferation	23.7 μ M	LPS-induced B-cells proliferation	20.5 μ M	[36]
73	Sinularcasbane O				>50 μ M		>50 μ M	
74	Gyrosanolide F				29.1 μ M		>100 μ M	
75	Sinuleptolide				8.5 μ M		21.7 μ M	
76	Xiguscabrate A	Plant	<i>S. scabra</i>	ConA-induced T-cell proliferation	>50 μ M	LPS-induced B-cell proliferation	46.5 μ M	[47]
77	Xiguscabrate B				8.4 μ M		25.6 μ M	
78	Xiguscabral A				15.8 μ M		44 μ M	
79	Xiguscabrol A				5.5 μ M		>50 μ M	
80	Xiguscabrol B				3.9 μ M		44.8 μ M	
81	8- <i>epi</i> -xiguscabrol B				2.3 μ M		34.9 μ M	
82	(1 <i>Z</i> ,5 <i>E</i> ,7 <i>E</i> ,11 <i>E</i>)-8-isopropyl-5,11-dimethylcyclo tetradeca-				>50 μ M		>50 μ M	
83	11 <i>S</i> ,12 <i>S</i> -epoxy-11,12-dihydrocembrene-C				39.2 μ M		14 μ M	
84	Sinulariol C				4.5 μ M		46.8 μ M	
85	Cembrene-A				44.3 μ M		16.7 μ M	
86	Pentaene-cembrene				>50 μ M		39.3 μ M	
87	(1 <i>S</i>)-isoscarcophytol-A				27.1 μ M		44.1 μ M	
88	(1 <i>E</i> ,3 <i>E</i> ,7 <i>E</i> ,11 <i>E</i>)-(14 <i>R</i>)-cembra-1,3,7,11-tetraen- 14-ol				19.6 μ M		>50 μ M	
89	(1 <i>S</i> ,2 <i>E</i> , 4 <i>S</i> ,7 <i>E</i> ,11 <i>E</i>) -2,7,11-cembratriene-4-ol				>50 μ M		49.8 μ M	
90	Nephthenol				10.7 μ M		38.6 μ M	
91	(3 <i>E</i> ,11 <i>E</i>)-cembra-3,8(19),11,15-tetraene-7-ol				48.9 μ M		42.5 μ M	
92	Sarcophytol T				40.4 μ M		32.1 μ M	
93	Gibberosene B				33.5 μ M		>50 μ M	

94	(1 <i>E</i> ,3 <i>E</i> ,7 <i>E</i> ,11 <i>R</i> *12 <i>R</i> *)-15-(acetoxymethyl)cembra-11,12-epoxy-1,3,7-triene	Plant	<i>S. Scabra</i>	ConA-induced T-cell proliferation	>50 μ M	LPS-induced B-cell proliferation	10.3 μ M	[47]
95	(1 <i>R</i> ,3 <i>S</i> ,4 <i>S</i> ,7 <i>E</i> ,11 <i>E</i>)-3,4-epoxycembra-7,11,15-triene				>50 μ M		>50 μ M	
96	Lobocrassin C				23.1 μ M		>50 μ M	
97	Pseudoplexauric acid methyl ester				>50 μ M		>50 μ M	
98	(1 <i>E</i> ,3 <i>E</i> ,7 <i>R</i> ,8 <i>R</i> ,11 <i>E</i> ,14 <i>R</i>)-3,4-epoxy-14-acetatecembra-1,3,11-trien-14-ol				11.9 μ M		40.1 μ M	
99	(2 <i>R</i> ,11 <i>S</i> ,12 <i>S</i>)-isosarcophytoxide				>50 μ M		4.4 μ M	
100	Sarcophytoxide				>50 μ M		>50 μ M	
101	Isosarcophine				47.8 μ M		>50 μ M	
102	(+)-marasol				27.4 μ M		>50 μ M	
103	Sarcophytol W				>50 μ M		>50 μ M	
104	Sinulariol Z				>50 μ M		>50 μ M	
105	Sinulariol Z				6.1 μ M		52.9 μ M	
106	Sinuflexibilin D				39.4 μ M		34.5 μ M	
107	Sinulariolide				19.5 μ M		9.2 μ M	
108	Sinuladiterpene G				>50 μ M		>50 μ M	
109	Sarcomililate 1a	Coral	the Hainan Soft Coral <i>Sarcophyton mililatensis</i>	ConA-induced T-cell proliferation	49.8 μ M	LPS-induced B-cell proliferation	20.2 μ M	[48]
110	Sarcomililate 1b				38.9 μ M		22.1 μ M	
111	Sarcomililatol B				>50 μ M		>50 μ M	
112	Sarcomililatols 2a				44.5 μ M		18.7 μ M	
113	Sarcomililatols 3a				>50 μ M		49.5 μ M	
114	Yalongene A				>50 μ M		4.8 μ M	
115	Sarcophytol M				11.4 μ M		4.9 μ M	

Table S3. Compounds 116–136 with Immunosuppressive Effects.

Noumber	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
116	Munronoid P	Plant	<i>Munronia pinnata</i>	ConA-induced T-cell proliferation	2.73 μ M	LPS-induced B-cell proliferation	34.88 μ M	[49]
117	Triterhyper A	Plant	<i>Hypericum longistylum</i>	anti-CD3/anti-CD28 stimulated spleen cells	4.5 μ M	/	/	[50]
118	Lupeol				18.3 μ M		/	
119	3b-hydroxyoleane-6b-oxethyl-12-en-28-oicacid-3-O-b-D-glucuronic	Plant	<i>Epigynum griffithianum</i>	proliferation of mice splenocyte	2.5 μ M	/	/	[14]
120	Schincarin C	Plant	<i>Schisandra</i>	LPS-induced B-cell proliferation	10.2 μ M	/	/	[51]
121	BC-1	Plant	<i>Beesia calthaefolia</i>	anti-CD3/anti-CD28 stimulated spleen cells	9.5 μ M	/	/	[52]
122	Dictabretol A	Plant	<i>Dictamnus dasycarpus</i>	ConA-induced T-cell proliferation	1.5 μ M	/	/	[53]
123	Dictabretol B				>20 μ M		/	
124	Dictabretol C				1.8 μ M		/	
125	Dictabretol D				1.5 μ M		/	
126	Schincalactones A	Plant	<i>Schisandra</i>	LPS-induced B-cell proliferation	36.8 μ M	/	/	[54]
127	Phainanolide A	Plant	<i>Phyllanthus hainanensis</i>	ConA-induced T-cell proliferation	364.75 μ M	LPS-induced B-cell proliferation	245.47 μ M	[55]
128	Phainanoid G				566.83 μ M		456.63 μ M	
129	Phainanoid H				16.15 μ M		8.24 μ M	
130	Phainanoid I				218.14 μ M		305.38 μ M	

131	Phainanoid A				184.9 μM		122.28 μM	
132	Phainanoid B				192.8 μM		249.49 μM	
133	Phainanoid C	Plant	<i>Phylanthus</i>	ConA-induced T-cell proliferation	6.24 μM	LPS-induced B-cell	2.35 μM	[56]
134	Phainanoid D		<i>hainanensis</i>		8.28 μM	proliferation	17.04 μM	
135	Phainanoid E				43.26 μM		4.38 μM	
136	Phainanoid F				2.04 μM		< 1.60 μM	

Table S4. Compounds 137–149 with Immunosuppressive Effects.

Noumber	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
137	Peniandranoid A	Fungi	<i>Penicillium</i> sp	ConA-induced T cell proliferation(EC ₅₀)	19 μ M	LPS-induced B-cells proliferation(EC ₅₀)	/	[56]
138	Peniandranoid B				/		50 μ M	
139	Peniandranoid C				4.3 μ M		11 μ M	
140	Peniandranoid D				11 μ M		8.8 μ M	
141	Peniandranoid E				27 μ M		12 μ M	
142	Isopenicin C				23 μ M		23 μ M	
143	Isopenicin A				8.5 μ M		8.5 μ M	
144	Isopenicin B	Plant	<i>Gentianella</i> <i>turkestanorum</i>	anti-CD3/anti-CD28 stimulated spleen cells	23 μ M	IFN- γ production	7.5 μ M	[57]
145	Nitidasin				12.31 μ M		16.5 μ M	
146	Gentianelloid F				13.68 μ M		14.66 μ M	
147	Alborosin	Plant	Colquhounia coccinea var. mollis	induced by anti-CD3/CD4 monoclonal antibodies	14.31 μ M	/	12.4 μ M	[58]
148	Colquhounoid D				8.38 μ M		/	
149	14- <i>epi</i> -colquhoun oid D				5.79 μ M		/	

Table S5. Compounds 150–176 with Immunosuppressive Effects.

Noumber	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
150	Wilfordatin E	Plant	<i>Tripterygium</i>	HEK293 cells induced by LPS	8.75 μ M	/	/	[60]
151	Tripfordine A		<i>wilfordii</i> Hook.		0.74 μ M		/	
152	Wilforine		f.		15.66 μ M		/	
153	Alopecine A	Plant	<i>Sophora alopecuroides</i>	ConA-induced T cell proliferation	>100 μ M	LPS-induced B-cells proliferation	69.6 μ M	[61]
154	Alopecine B				>100 μ M		96.8 μ M	
155	Alopecine C				>100 μ M		59.5 μ M	
156	Alopecine D				3.9 μ M		3.7 μ M	
157	Alopecine E				58.7 μ M		9.4 μ M	
158	Albifpyrrol B	Fungi	<i>Albifmbria viridis</i>	ConA-induced T-cell proliferation	/	LPS-induced B-cell proliferation	16.16 μ M	[62]
159	Fumiquinazoline J	Fungi	<i>Aspergillus</i>	ConA-induced T-cell proliferation	29.38 μ M	LPS-induced B-cell proliferation	162.58 μ M	[63]
160	Fumigaclavine C		<i>fumigatus</i> HQD24.		52.13 μ M		/	
161	12-Methoxychanofruticosinic acid	Plant	<i>Kopsia officinalis</i>	human T cell proliferation (PBMCs)	27.8 μ M	/	/	[64]
162	N(4)-methylkopsininate				21.6 μ M			
163	Demethoxycarbonylkopsin				25.4 μ M			
164	Rhazinilam				1.0 μ M			

165	Gentianelloid A	Plant	<i>Gentianella turkestanorum</i>	anti-CD3/CD28 mAbs induced	5.64 μ M	/	/	[65]
166	Gentianelloid B			murine T lymphocytes proliferation	3.93 μ M			
167	Eurysoloids A	Plant	Eurysolen gracilis	anti-CD3/CD28 mAbs induced	17.4 μ M	/	/	[66]
168	Eurysoloids B			murine T lymphocytes proliferation	15.94 μ M			
169	Rhazinilam	Plant	<i>Pausinystalia yohimbe</i>	ConA-induced T-cell proliferation	16.8 μ M	LPS-induced B-cell proliferation	13.5 μ M	[65]
170	Ophiorrhine C	Plant	<i>Ophiorrhiza cantoniensis</i>	ConA-induced T cell proliferation	23.6 μ M	LPS-induced B-cell proliferation	8.7 μ M	[66]
171	Ophiorrhine D		<i>Hace</i>		17.9 μ M		68.5 μ M	
172	Ophiorrhine E				>200 μ M		116.2 μ M	
173	Ophiorrhine F	Plant	<i>Ophiorrhiza japonica</i>	ConA-induced T cell proliferation	>200 μ M	LPS-induced B-cells proliferation	<0.4 μ M	[67]
174	Ophiorrhine G				>201 μ M		47.3 μ M	
175	Reserpine	Plant	<i>Rauvolfia yunnanensis</i>	human T cell	5.0 μ M	/	/	[68]
176	11-hydroxyburnamine		<i>Tsiang</i>		5.9 μ M			

Table S6. Compounds 177–234with Immunosuppressive Effects.

Noumber	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
177	Hypaluton A	Plant	<i>Hypericum patulum</i>	LPS-induced B-cell proliferation	6.8 μ M	/	/	[72]
178	Eucalyptin A	Plant	<i>Eucalyptus globulus.</i>	ConA-induced T-cell proliferation	18.2 μ M	/	/	[73]
179	Eucalyptin B				19.1 μ M		/	
180	Eucalyptin C				11.8 μ M		/	
181	Eucalyptin D				10.2 μ M		/	
182	Eucalyptin E				35.8 μ M		/	
183	Eucalyptin F				26.3 μ M		/	
184	Eucalyptin G				35.3 μ M		/	
185	Macrocarpal A				20.4 μ M		/	
186	Macrocarpal B				31.2 μ M		/	
187	Macrocarpal C				69.6 μ M		/	
188	Macrocarpal D				41.2 μ M		/	
189	Macrocarpal E				42.4 μ M		/	
190	Macrocarpal Q				52.3 μ M		/	
191	Eucarobustol E				68.4 μ M		/	
192	Euglobal-V				69.3 μ M		/	
193	Euglobal-III				129.3 μ M		/	
194	1-(2,6-dihydroxy-4-methoxy-3,5-dimethylphenyl)-2-methylbutan-1-one				70.2 μ M		/	

195	1-(2,4-dihydroxy-6-methoxy-3,5-dimethylphenyl)-3-methylbutan-1-one	Plant	<i>Eucalyptus globulus</i> .	ConA-induced T-cell proliferation	132.9 μ M	/	/	[72]
196	Prenyllongnol A	Plant	<i>Hypericum longistylum</i>	ConA-induced T cell proliferation	3.44 μ M	/	/	[74]
197	Prenyllongnol B				2.98 μ M		/	
198	Prenyllongnol C				5.31 μ M		/	
199	Prenyllongnol D				6.34 μ M		/	
200	Dendrophenene A	Plant	<i>Dendrobium devonianum</i>	ConA-induced T cell proliferation	0.17 μ M	LPS-induced B cell proliferation	28.3 μ M	[75]
201	Dendrophenene B				2.47 μ M		52.6 μ M	
202	Tyrosol	Plant	<i>H. abyssinica</i>	PMNs and MNCs	/	/	/	[76]
203	3,4-dihydroxy-ethyl ester				/	/	/	
204	Daldiniols A	Plant	<i>Anoectochilus roxburghii</i>	LPS-induced B-cell proliferation	0.06 μ M	/	/	[77]
205	2-phenylpropanoate-2-O- β -D-apiofuranosyl-(1 \rightarrow 6)-O- β -D-glucopyranoside	Plant	<i>Cinnamomum cassia</i>	ConA-induced murine T cells	>200 μ M	/	/	[72]
206	3,4,5-trimethoxyphenol- β -D-api ofuranosyl-(1 \rightarrow 6)-O- β -D-glucopyranoside				12.5 μ M		/	
207	(+)-Hyperzewalsin B	Plant	<i>hypericum przewalskii maxim</i>	LPS-induced B-cell proliferation	7.36 μ M	/	/	[78]
208	(-)-hyperzewalsin B				7.14 μ M		/	
209	Hyperzewalsin E				7.2 μ M		/	
210	Lupulone D				6.61 μ M		/	

211	8- <i>O</i> -methyl mycophenolic acid	Fungi	<i>Penicillium bialowiezense</i>	/	/	4.21 μ M	[79]
212	3-hydroxy mycophenolic acid				/	1.23 μ M	
213	6-(5-carboxy-3-methylpent-2-enyl)-7-hydroxy-3,5-dimethoxy-4-methylphthalan-1-one				/	2.76 μ M	
214	6-(5-methoxycarbonyl-3-methylpent-2-enyl)-3,7-dihydroxy-5-methoxy-4-methylphthalan-1-one				/	9.12 μ M	
215	6-(3-carboxybutyl)-7-hydroxy-5-methoxy-4-methylphthalan-1-one				/	>40 μ M	
216	6-[5-(2,3-dihydroxy-1-carboxyglyceride)-3-methylpent-2-enyl]-7-hydroxy-5-methoxy-4-methylphthalan-1-one	Fungi	<i>Penicillium bialowiezense</i>	/	/	19.65 μ M	
217	6-[5-(1-carboxy-4-N-carboxylate)-3-methylpent-2-enyl]-7-hydroxy-5-methoxy-4-methylphthalan-1-one				/	24.58 μ M	
218	N-mycophenoyl-L-valine				/	30.56 μ M	
219	N-mycophenoyl-L-phenylalanine				/	>40 μ M	
220	N-mycophenoyl-L-alanine				/	>40 μ M	

221	Hyperformitin A	Plant	<i>Hypericum perforatum</i>	LPS-Induced Murine B Cell Proliferation	9.7 μ M	/	/	[80]
222	Hyperformitin B				>10 μ M		/	
223	Hyperformitin C				4.3 μ M		/	
224	Hyperformitin D				9.3 μ M		/	
225	Hyperformitin E				4.1 μ M		/	
226	Hyperformitin G				9.2 μ M		/	
227	Hyperformitin H				>10 μ M		/	
228	Hyperformitin J				>10 μ M		/	
229	Hyperformitin K				8.8 μ M		/	
230	Hyperformitin L				>10 μ M		/	
231	Hyperformitin M	Plant	<i>Hypericum przewalskii</i> Maxim	anti-CD3/anti-CD28 stimulated spleen cells	>10 μ M	/	/	[81]
232	Przewalcyrone C				5.01 μ M		/	
233	Przewalcyrone D				5.26 μ M		/	
234	Cumilcinol E	Plant	<i>Hypericum wilsonii</i>	ConA-induced T-cell proliferation	4.803 μ M	/	/	[82]

Table S7. Compounds 235–262 with Immunosuppressive Effects.

Noumber	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
235	Jaceosidin	Plant	<i>Artemisia argyi</i>	LPS stimulated in BV-2 microglial cells	1.9 μ M	/	/	[83]
236	Eupatilin				4 μ M	/	/	
237	Tsaokonol A				16.2 μ M		/	
238	Tsaokonol B	Plant	<i>Amomum tsao-ko</i>	against LPS-induced RAW 264.7 macrophages	14 μ M	/	/	[28]
239	Tsaokonol C				10.6 μ M		/	
240	Tsaokonol D				13.5 μ M		/	
241	Tsaokonol E				41.5 μ M		/	
242	Tsaokonol F				39.2 μ M		/	
243	Tsaokonol G				26.1 μ M		/	
244	Tsaokonol H				28.7 μ M		/	
245	Tsaokonol I				30.6 μ M		/	
246	Tsaokonol J				13.5 μ M		/	
247	4',5'-dihydroxy-5,7-dimethoxy-6-(3-methylbut-2-enyl)-coumaronochromone	Plant	<i>Campylotropis hirtella</i>	ConA-induced T-cell proliferation	0.28 μ M	LPS-induced B-cell proliferation	1.55 μ M	[84]
248	6,3'-di(3-hydroxy-3-methylbutyl)-5,7,2'-4'-tetrahydroxyisoflavanone				79.13 μ M		29.12 μ M	
249	3(R)-6,3'-di(3-hydroxy-3-methylbutyl)-2'-methoxyl-5,7,4'-trihydroxyisoflavanone				18.12 μ M		6.66 μ M	
250	Hydroisoflavone C				53.16 μ M		25.76 μ M	

251	3-(1',4'-dihydroxycyclohexyl)-6-geranyl-5,7,-dihydroxyisoflavone	Plant	<i>Campylotropis hirtella</i>	ConA-induced T-cell proliferation	3.25 μ M		2.68 μ M	[84]
252	5,7,4'-trihydroxy-3'-[6,7-dihydroxy-3,7-dimethyl-2(<i>E</i>)-octenyl] isoflavone				4.52 μ M	LPS-induced B-cell proliferation	2.38 μ M	
253	2R,3R-3'-[7-hydroxy-3,7-dimethyl-2(<i>E</i>)-octenyl]-2,3-trans-5,7,4'-trihydroxy-flavonol				4.34 μ M		4.82 μ M	
254	3''',4',4''',7-tetrahydroxy-3''',5-dimethoxy-3- <i>O</i> - β -D-glucopyranosyl-8-isopentenol-8'''-prenyl-(3'→7'')-biflavonoid	Plant	<i>Citrus medica L. var.</i>	ConA-induced T-cell proliferation	16.83 μ M		/	[85]
255	3''',4''',4''',5-dihydroxy-5-methoxy-3- <i>O</i> - β -D-glucopyranosyl-7,8-(12,13-dimethylchromene)-9'''-isopropyl-(3'→7'')-biflavonoid				18.95 μ M	/	/	
256	3''',4''',4''',5-dihydroxy-3''',5,5''',5'''-trimethoxy-3- <i>O</i> - β -D-glucopyranosyl-7,8-isopropylpenentenone-9'''-carbonyl-(3'→7'')-biflavonoid				20.28 μ M	/	/	
257	Amentoflavone 7''- <i>O</i> - β -D-glucopyranoside				50.90 μ M		/	

258	2-(4'-hydroxy-3'-methoxyphenyl)-3-hydroxy-12,13-dimethylchromene-3'',4'',5''-12-9-trimethoxyphenyl-8''-(4''',5'''-dimethylallyl)-dipyrano-xanthene-4,9''-dione			41.82 μ M	/	
259	2-(4'-hydroxy-3'-methoxyphenyl)-3-hydroxy-7,8-furan-10-isopropanol-1'',5''-144 isopropylpentenone-pyranochromene-2'',4,6''-trione	Plant	<i>Hippophae rhamnoides</i> L.	ConA-induced T-cell proliferation	19.42 μ M	/
260	2-(4'-hydroxy-3',5'-dimethoxyphenyl)-3-hydroxy-12,13-dimethylchromene-149 1'',5''-isopropylpentenone-pyranochromene-2'',4,6''-trione			20.19 μ M	/	
261	Cinchonain A			48.05 μ M	/	
262	Cinchonain B			46.91 μ M	/	

[86]

Table S8. Compounds 263–270 with Immunosuppressive Effects.

Number	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
263	Quadristerol B	Fungi	<i>Aspergillus quadrilineata</i>	ConA-induced T-cell proliferation	7.43 μ M	LPS-induced B-cell proliferation	/	[87]
264	Quadristerol C				3.95 μ M		/	
265	Quadristerol D				/		10.96 μ M	
266	Quadristerol E				/		7.47 μ M	
267	Atracynoside A	Plant	<i>Cynanchum atratum</i>	ConA-induced T-cell proliferation	3.3 μ M	/	/	[88]
268	Atracynoside B				7 μ M		/	
269	Atracynoside C				6.7 μ M		/	
270	Atracynoside E				59.3 μ M		/	

Table S9. Compounds 271–324 with Immunosuppressive Effects.

Noumber	Compounds	Type	Source	Model 1	Activities IC ₅₀	Model 2	Activities IC ₅₀	Reference
271	(+)-Adprepyrone B	Fungi	<i>Talaromyces adpressu</i>	ConA-induced T-cell proliferation	11.6 μ M	/	/	[89]
272	(+)-Adprepyrone D				8.9 μ M		/	
273	(–)-Adprepyrone D				9.6 μ M		/	
274	(+)-Adprepyrone E				16.8 μ M		/	
275	(–)-Adprepyrone E				16.8 μ M		/	
276	6-[(<i>E</i>)-3-Hydroxyprop-1-enyl]-4-methoxy-5-methyl-2-pyrone	Plant	<i>Epigynum cochinchinensis</i>	ConA-induced T-cell proliferation	19.8 μ M	/	/	[90]
277	Pinoresinol				12.5 μ M		/	
278	Syringaresinol				50 μ M		/	
279	Sydoxanthone B	Fungi	<i>Aspergillus sydowii</i>	ConA-induced T-cell proliferation	22.53 μ M	LPS-induced B-cells proliferation	15.3 μ M	[91]
280	13- <i>O</i> -acetylsydowinin B				172.7 μ M		/	
281	Diaporchromone A	Plant	<i>Rhizophora mangle</i>	ConA-induced T-cell proliferation	34 μ M	LPS-induced B-cells proliferation	117 μ M	[92]
282	Peniphenone	Fungi	<i>Penicillium sp.</i> ZJ-SY2	ConA-induced T-cell proliferation	8.1 μ M	LPS-induced B-cells proliferation	9.3 μ M	[93]

283	Methyl peniphenone	Fungi	<i>Penicillium sp.</i> ZJ-SY2	ConA-induced T-cell proliferation	17.5 μ M	B-cells proliferation	23.7 μ M	[93]
284	Conioxanthone A				8.2 μ M		7.5 μ M	
285	Methyl-8-hydroxy-6-methyl-9-oxo-9H-xanthene -1-carboxylate				25.7 μ M		26.4 μ M	
286	Pinselin				5.9 μ M		7.5 μ M	
287	Sydowinin B				19.2 μ M		20.8 μ M	
288	Sydowinin A				6.5 μ M		7.1 μ M	
289	Remisporine B				30.1 μ M		32.4 μ M	
290	Epiremisorpine B				30.8 μ M		31.2 μ M	
291	Pestaphilone A	Fungi	<i>Pestalotiopsis</i> <i>oxyanthi</i>	murine T lymphocyte proliferation stimulated by Con A	9.36 μ M	/	/	[94]
292	Pestaphilone B				21.78 μ M		/	
293	Pestaphilone C				17.94 μ M		/	
294	Pestaphilone D				19.72 μ M		/	
295	Pestaphilone E				25.64 μ M		/	
296	Pestaphilone F				35.21 μ M		/	
297	Podospin A	Fungi	<i>Podospira sp</i>	ConA-induced T cell proliferation	10.6 μ M	LPS-induced B cell proliferation	10.3 μ M	[95]
298	Podospin E				25.1 μ M		27.7 μ M	
299	Podospin J				18.8 μ M		21.9 μ M	
300	Podospin L				16.5 μ M		14.6 μ M	
301	LL-Z1640-1				7.4 μ M		6.4 μ M	
302	(5E)-7-oxozeaenol				6.0 μ M		6.2 μ M	
303	Cochliomycin D				11.4 μ M		6.8 μ M	
304	Cochliomycin E				24.1 μ M		29.1 μ M	
305	Cochliomycin F				15.2 μ M		11.8 μ M	

306	Dihydrohypothemycin	Fungi	<i>Podospora</i> sp	ConA-induced T cell proliferation	8.1 μ M		8.5 μ M	[95]
307	Aigialomycin D				16.3 μ M		18.4 μ M	
308	1-naphthaleneheptanoic acid	Fungi	<i>Tripterygium wilfordii</i> .	anti-CD3/anti-CD28 stimulated spleen cells	16.51 μ M	/	/	[96]
309	Monacolin K				8.75 μ M		/	
310	Monacolin L				5.3 μ M		/	
311	Monacolin J				6.74 μ M		/	
312	Curtachalasin F	Fungi	<i>Xylaria cf. curta</i>	ConA-induced T-cell proliferation	70.9 μ M		2.4 μ M	[75]
313	Curtachalasin H				28.5 μ M		72.6 μ M	
314	Curtachalasin I				13.3 μ M		72.6 μ M	
315	Curtachalasin J				21.0 μ M		/	
316	Curtachalasin M				31.1 μ M	LPS-induced B-cell proliferation	/	
317	Curtachalasin N				62.5 μ M		/	
318	Curtachalasin O				12.6 μ M		/	
319	Curtachalasin P				16.5 μ M		72.3 μ M	
320	urtachalasins A				29.0 μ M		/	
321	Curtachalasins B				39.7 μ M		35.4 μ M	
322	Curtachalasins E				22.4 μ M		88.0 μ M	
323	Ivorenolide B	Plant	<i>Khaya ivorensis</i>	LPS-induced B-cell proliferation	7.2 μ M	/	/	[97]
324	Efophylin B	Fungi	<i>Streptomyces malaysiensis</i>	ConA-induced T-cell proliferation	24.6 μ M	/	/	[98]