

Supplementary Table 5: C₃₀ regular (4-desmethyl) sterane patterns from catalytic hydropyrolysis (HyPy) of the sponges used in this study

Genus species	Major HyPy sterane	Major HyPy C ₃₀ sterane	24-npc	24-ipc	26-mes	%26-mes ^a	%C ₃₀ steranes ^a	%Conventional ^e	%Unconventional ^b	TAR ^c
<i>Geodia phlegraei</i>	aplysterane	26-mes	✓	✓	✓	4.0%	5.1%	25.6%	74.4%	2.9
<i>Geodia parva</i> (PC535)	aplysterane	26-mes	✓	✓	✓	4.5%	6.8%	30.9%	69.1%	2.2
<i>Geodia parva</i> (GpII)	aplysterane	26-mes	✓	✓	✓	3.6%	5.4%	32.7%	67.3%	2.1
<i>Geodia hentscheli</i>	ergostane	24-npc	✓	x	x	0.0%	0.9%	100.0%	0.0%	0.0
<i>Rhabdastrella distincta</i>	aplysterane	26-mes	✓	✓	✓	3.8%	4.4%	22.5%	77.5%	3.5
<i>Rhabdastrella wondoensis</i> (PC866)	aplysterane	26-mes	✓	✓	✓	4.1%	5.2%	43.7%	56.3%	1.3
<i>Rhabdastrella wondoensis</i> (PC865)	aplysterane	26-mes	✓	✓	✓	4.4%	5.0%	51.0%	49.0%	1.0
<i>Rhabdastrella globostellata</i> (PC922)	aplysterane	26-mes	✓	✓	✓	9.3%	10.6%	47.8%	52.2%	1.1
<i>Rhabdastrella globostellata</i> (PC140)	stigmastane	26-mes	✓	✓	✓	2.9%	3.9%	69.5%	30.5%	0.5
<i>Rhabdastrella globostellata</i> (PC492)	stigmastane	26-mes	✓	✓	✓	0.5%	0.6%	95.7%	4.3%	0.1
<i>Stelletta tuberosa</i>	ergostane	24-npc	✓	✓	x	0.0%	0.6%	99.6%	0.4%	<0.01
<i>Cinachyrella kuekenthali</i>	stigmastane	24-npc	✓	✓	x	0.0%	0.3%	99.6%	0.4%	<0.01
<i>Craniella zetlandica</i>	stigmastane	24-npc	✓	✓	x	0.0%	0.6%	100.0%	0.0%	0.0
<i>Petrosia (Strongylophora) cf. vansoesti</i>	stigmastane	24-npc	✓	x	x	0.0%	1.2%	72.8%	27.2%	0.4
<i>Petrosia (Strongylophora) durissima</i> (PC1068)	stigmastane	24-ipc	✓	✓	x	0.0%	0.7%	100.0%	0.0%	0.0
<i>Petrosia (Strongylophora) durissima</i> (1907.2.1.37)	stigmastane	24-npc	✓	✓	x	0.0%	0.5%	100.0%	0.0%	0.0
<i>Ciocalypta carballoi</i>	24-ipc	24-ipc	✓	✓	x	0.0%	41.6%	99.8%	0.2%	<0.01
<i>Halichondria</i> sp. ^d	cholestane	24-npc	✓	x	x	0.0%	0.2%	100.0%	0.0%	0.0
<i>Suberites</i> sp. ^d	cholestane	24-npc	✓	x	x	0.0%	0.4%	100.0%	0.0%	0.0
<i>Phakellia ventilabrum</i>	cholestane	24-npc	✓	x	x	0.0%	0.8%	100.0%	0.0%	0.0
<i>Thymosiopsis conglomerans</i>	thymosiosterane	thymosiosterane	x	x	x	0.0%	53.5%	43.4%	56.6%	1.3
<i>Thymosiopsis cf. cuticulatus</i>	cholestane	24-ipc	✓	✓	x	0.0%	0.7%	99.9%	0.1%	<0.01
<i>Aplysina aerophoba</i>	aplysterane	verongulasterane	✓	✓	✓	0.06%	1.8%	27.9%	72.1%	2.6
<i>Aplysina fulva</i>	aplysterane	verongulasterane	✓	✓	✓	0.03%	1.3%	35.8%	64.2%	1.8
<i>Verongula rigida</i>	cholestane	verongulasterane	✓	✓	✓	0.15%	4.4%	66.6%	33.4%	0.5
<i>Verongula reisiwigi</i>	aplysterane	verongulasterane	✓	✓	✓	0.10%	2.9%	62.6%	37.4%	0.6
<i>Cymbaxinella corrugata</i> ^d	cholestane	24-npc	✓	✓	✓	0.12%	1.6%	97.1%	2.9%	0.1
<i>Dysidea fragilis</i> ^d	cholestane	24-npc	✓	✓	x	0.0%	0.4%	98.9%	1.1%	<0.01
<i>Cliona</i> sp. ^d	cholestane	24-npc	✓	x	x	0.0%	0.3%	100.0%	0.0%	0.0
<i>Microciona</i> sp. ^d	cholestane	none	x	x	x	0.0%	0.0%	100.0%	0.0%	0.0
<i>Plakinastrella onkodes</i>	cholestane	none	x	x	x	0.0%	0.0%	100.0%	0.0%	0.0
<i>Plakortis halichondrioides</i>	stigmastane	none	x	x	x	0.0%	0.0%	100.0%	0.0%	0.0
<i>Vazella pourtalesii</i>	cholestane	24-npc	✓	x	x	0.0%	0.2%	100.0%	0.0%	0.0
<i>Leucosolenia</i> sp. ^d	cholestane	none	x	x	x	0.0%	0.0%	100.0%	0.0%	0.0

- a: Expressed as a % total of C₂₇-C₃₀ steranes for αααR isomer from MRM-GCMS
- b: Unconventional = alkylation at [terminal] position C-26 or C-27 in the sterane side-chain (e.g. 26-mes, aplysterane, verongulasterane, thymosiosterane, cryostane)
- c: TAR = Terminal Alkylation Ratio = $\Sigma(\text{terminally alkylated steranes}) / \Sigma(\text{C-24 alkylated steranes})$
- e: Conventional = cholestane, ergostane, stigmastane, 24-npc and 24-ipc
- ✓: compound present on MRM-GCMS trace after HyPy
- x: compound absent on MRM-GCMS trace after HyPy
- See Chart I for sterane structures, sponges are listed in the same order as in Table S4 for specimens of the same species