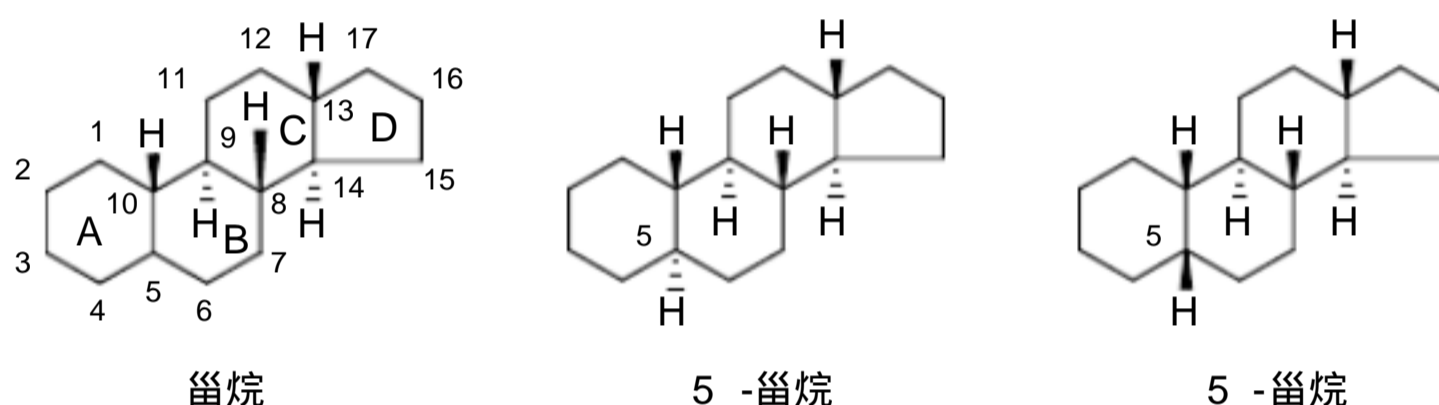


有机化合物中文命名原则

2010 年推荐版

8.3. 甾体 (steroid) [1]

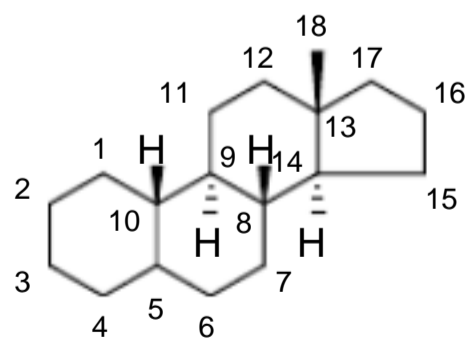
甾体化合物母体氢化物的基本骨架是全氢化的戊环并 [a]菲的甾烷 (gonane), 一个由 6/6/6/5 员组成的 A/B/C/D 四环体系。各种不同结构类型甾体化合物的分类主要取决于此甾烷骨架 10 位、13 位上甲基的有无和 17 位上碳链的长短和带有的取代基及结构状况。甾烷的编号体系和立体构型见下结构式, 其中 5-位的氢处于平面上的称 5 α -甾烷, 在下者称 5 β -甾烷。



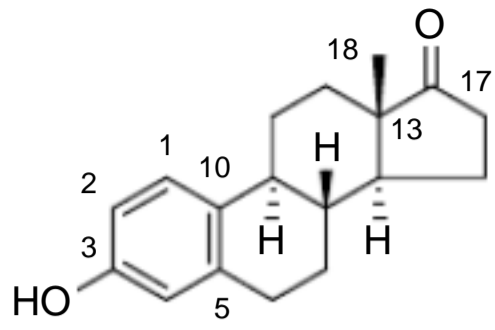
由甾烷衍生得各类母体氢化物、官能性母体和其半系统命名见以下各节。由各类甾体母体氢化物和官能性母体衍生化合物的半系统命名按前述命名通则进行, 其立体化学的标识在四环环上者采用 α , β 位表达取代基其与角甲基相反或相同侧的相对构型 (参见 7.3.1 节); 在边链上者则仍按一般的 R/S 体系规则进行, 废止 1980 版的 / 标识方法。

8.3.1. 雌甾烷类

母体氢化物: 雌甾烷 (estrane)



例:

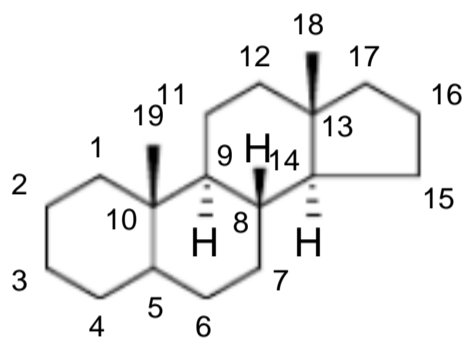


半系统名：3-羟基雌甾-1,3,5(10)-三烯-17-酮 (3-hydroxyestra-1,3,5(10)-trien-17-one)

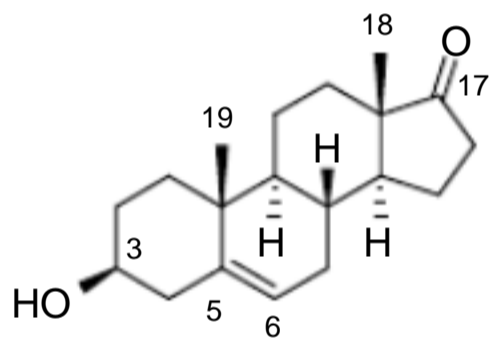
俗名：雌酮 (estrone)

8.3.2. 雄甾烷类

母体氢化物：雄甾烷 (androstane)



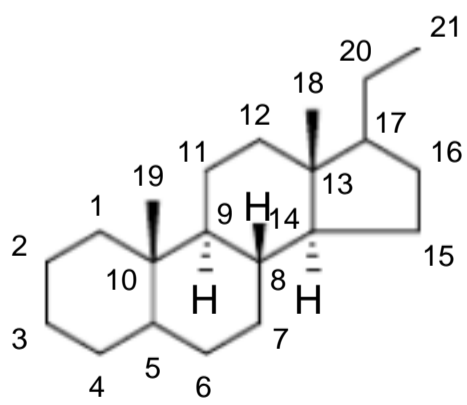
例：



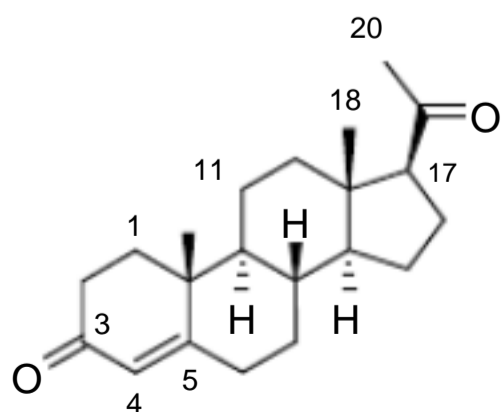
半系统名：3-羟基雄甾-5-烯-17-酮 (3-hydroxyandrost-5-en-17-one)

8.3.3. 孕甾烷类

母体氢化物：孕甾烷 (pregnane)



例：

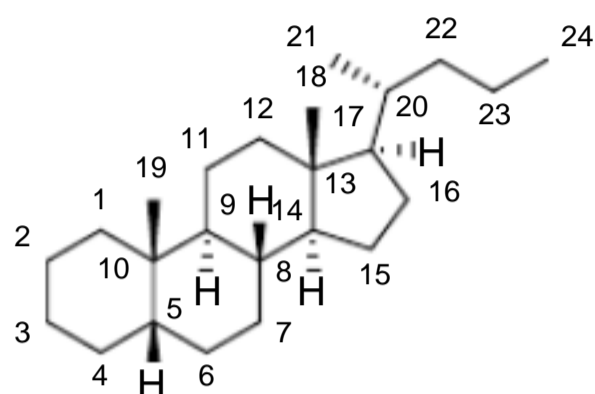


半系统名：孕甾 -4-烯-3,17-二酮 (pregn-4-en-3,17-dione)

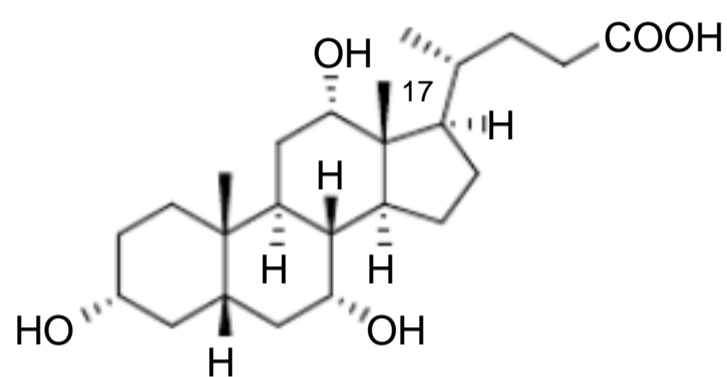
俗名：黄体酮 (progesterone)

8.3.4. 胆酸烷类

母体氢化物：胆 (酸)烷 (cholane)



例：



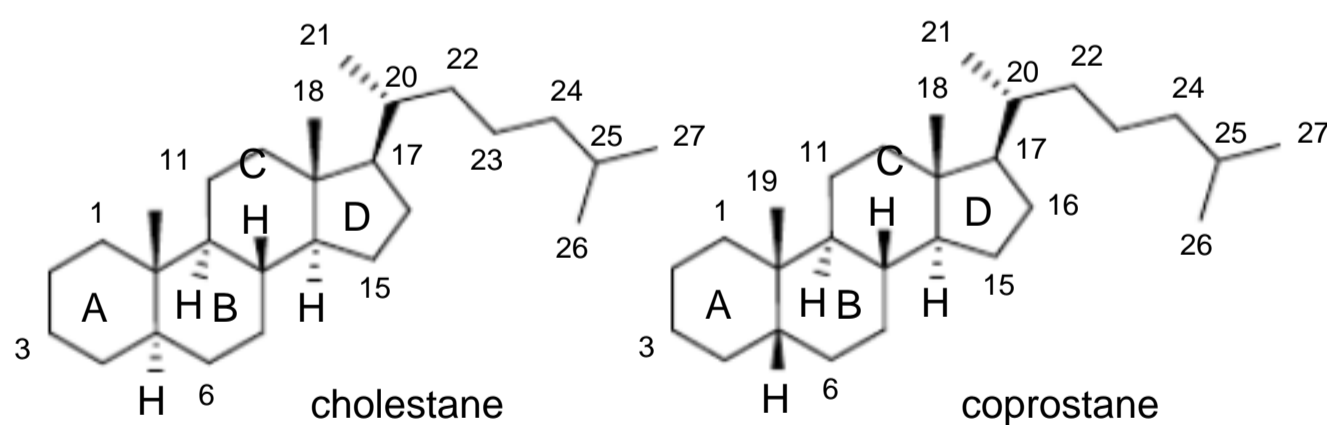
半系统名：3,7,12-三羟基-胆-24-酸 (3,7,12-trihydroxy-cholan-24-oic acid)

俗名：胆酸，牛胆酸 (cholic acid)

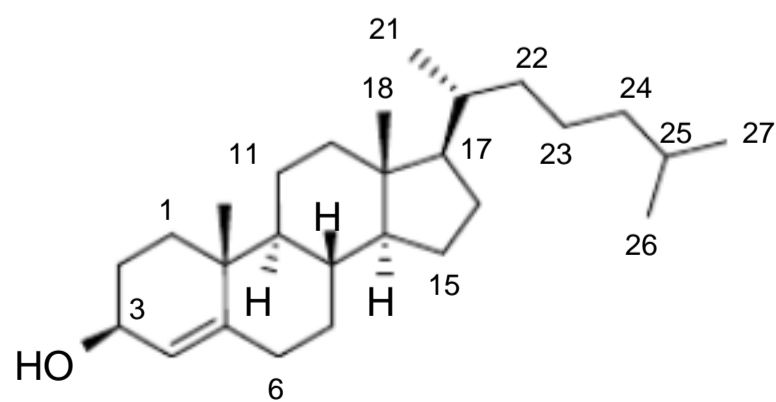
8.3.5. 其它 C-17 位不同碳链甾体类型

(1) 胆甾烷类和粪甾烷类

母体氢化物：胆甾烷 (cholestane) 和粪甾烷 (coprostane)

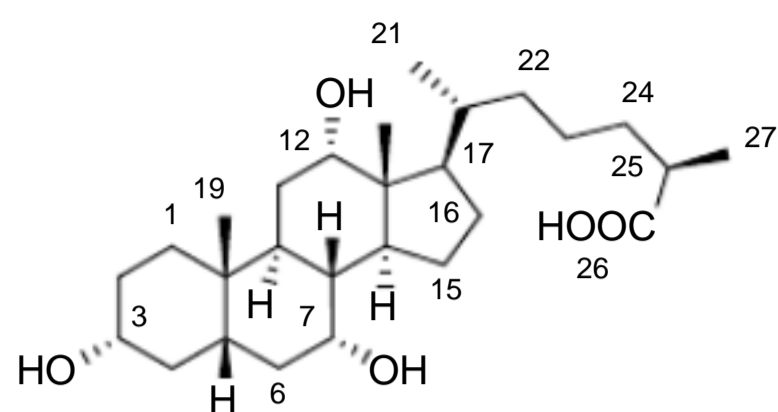


例：



半系统名：胆甾 -5-烯-3-醇 (cholest-5-en-3-ol)

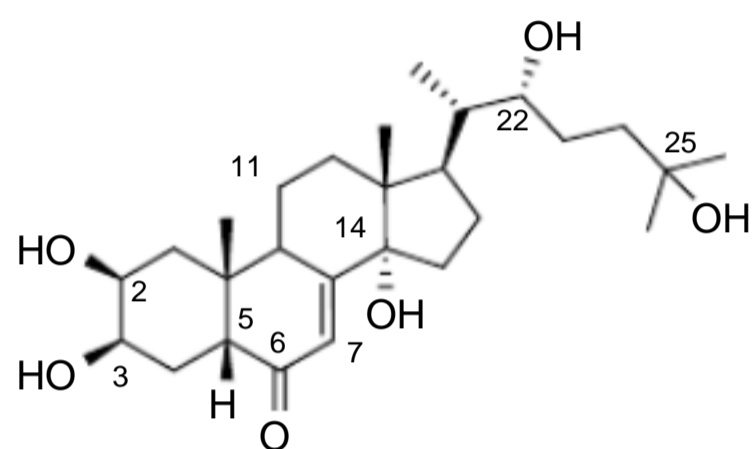
俗名：胆固醇 (cholesterol)



半系统名：3,7,12-三羟基-粪甾-26-酸 (3,7,12-trihydroxy-coprostan-26-oic acid)

或 3,7,12-三羟基-5-胆甾-26-酸 (3,7,12-trihydroxy-5-cholestan-26-oic acid)

俗名：三羟基粪甾烷酸 (trihydroxycoprostanoic acid)



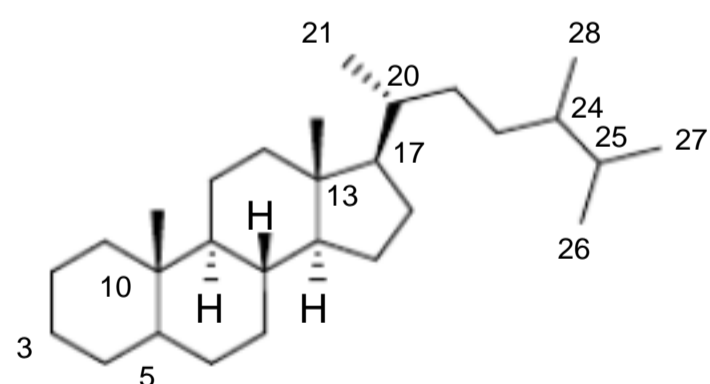
半系统名：2,3,14,22R,25-五羟基-5-胆甾-7-烯-6-酮

(2,3,14,22R,25-pentahydroxy-5-cholest-7-en-6-one)

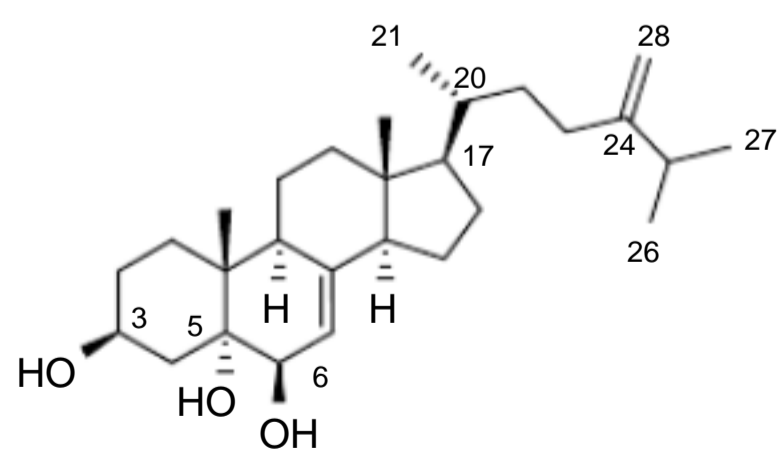
俗名：蜕皮酮 (ecdysone)

(2) 麦角甾烷类

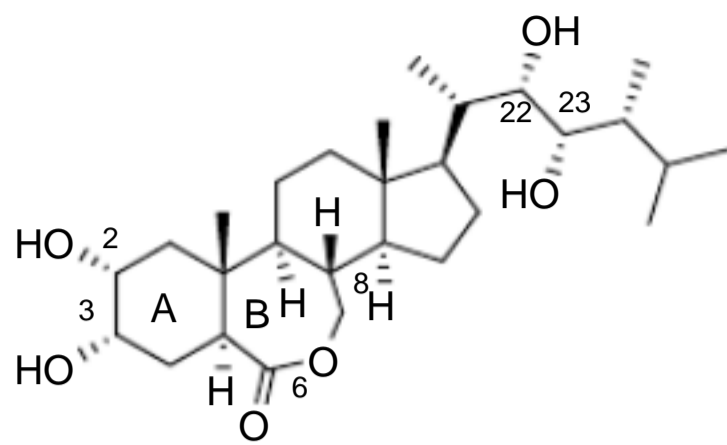
母体氢化物：麦角甾烷 (ergostane)



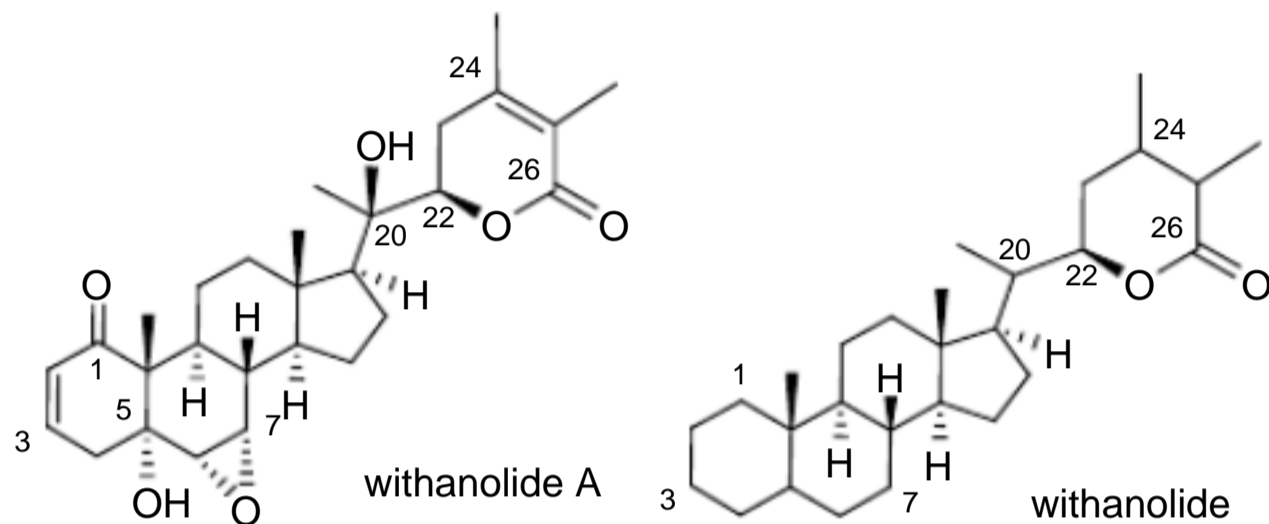
例：



半系统名：麦角甾-7,24(28)-二烯-3,5,6-三醇 (ergosta-7,24(28)-diene-3,5,6-triol)



半系统名：2,3,22S,23S-四羟基-B-增-7-氧杂-5-麦角甾-6-酮
 (2,3,22S,23Stetrahydroxy-B-homo-7-oxa-5-ergostan-6-one)



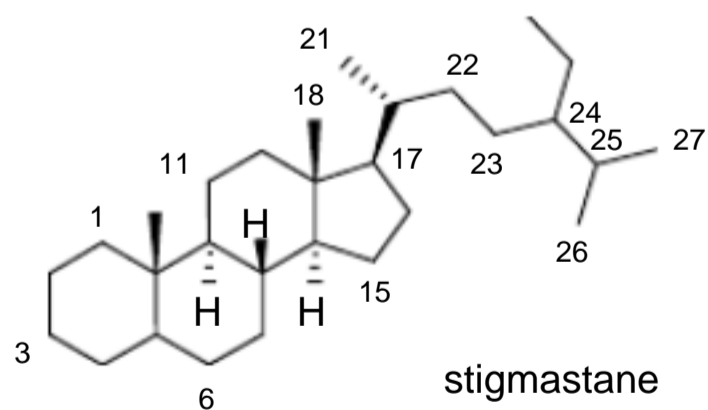
半系统名：6,7-氧桥-5,20R,22R-三羟基-1-氧亚基-麦角甾-2,24-二烯酸-内酯
 (6,7-epoxy-5,20R,22R-trihydroxy-1-oxo-ergosta-2,24-dien-26-oic acid, -lactone)

注：在睡茄内酯类天然产物中有以俗名睡茄内酯 (withanolide) 为官能性母体进行半系统命名，则此时可命名为：6,7-氧桥-5,20R,22R-三羟基-1-氧亚基-睡茄-2,24-二烯内酯 (6,7-epoxy-5,20R,22R-trihydroxy-1-oxo-witha-2,24-dienolide)

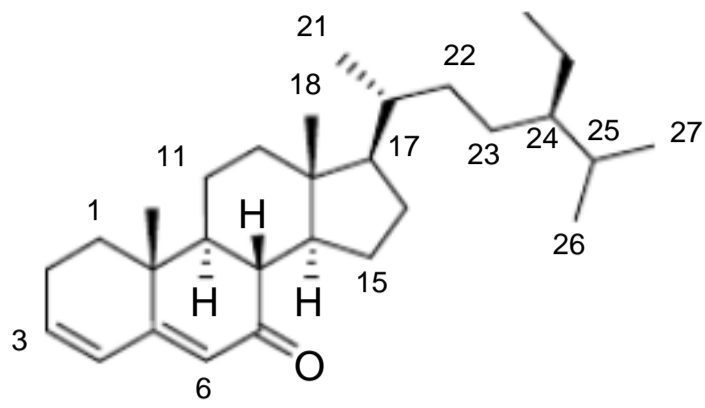
俗名：睡茄内酯 A (withanolide A)

(3) 甾萜烷类

母体氢化物：甾萜烷 (stigmastane)



例：

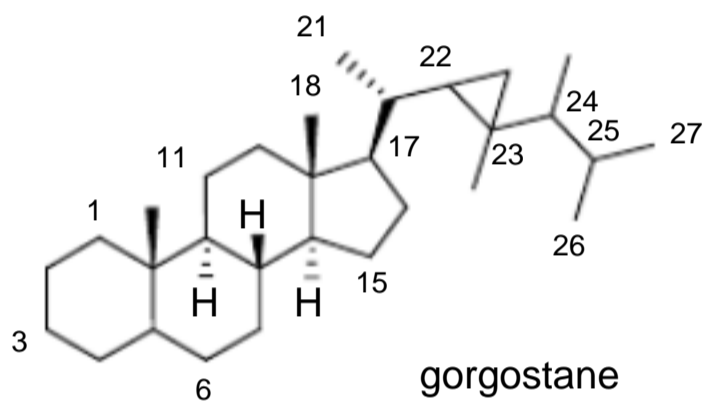


半系统名：(24R)-豆甾-3,5-二烯-7-酮

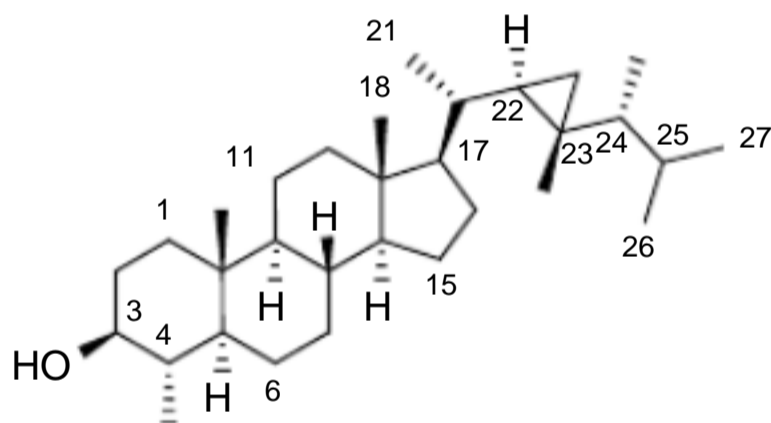
((24R)-stigmast-3,5-dien-7-one)

(4) 珊瑚甾烷类

母体氢化物：珊瑚甾烷 (gorgostane)



例：



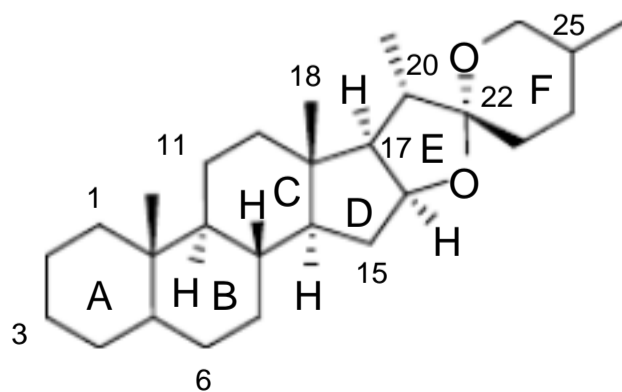
半系统名：(5,22R,23R,24R)-4-甲基-珊瑚甾-3-醇

((5,22R,23R,24R)-4-methyl-gorgostan-3-ol)

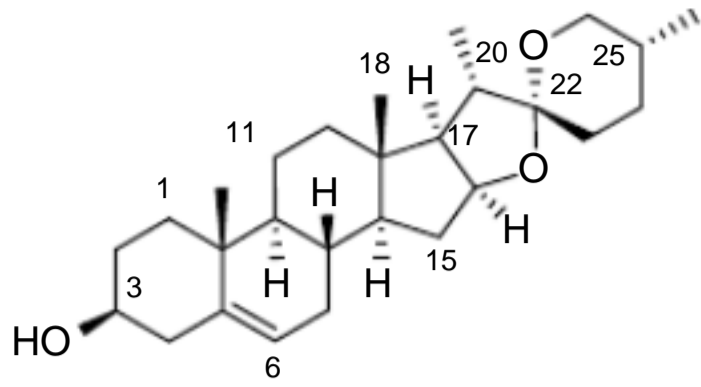
8.3.6. C-17位连杂环边链的甾体类型

(1) 螺甾烷类

母体氢化物：螺甾烷 (spirostane)



例：

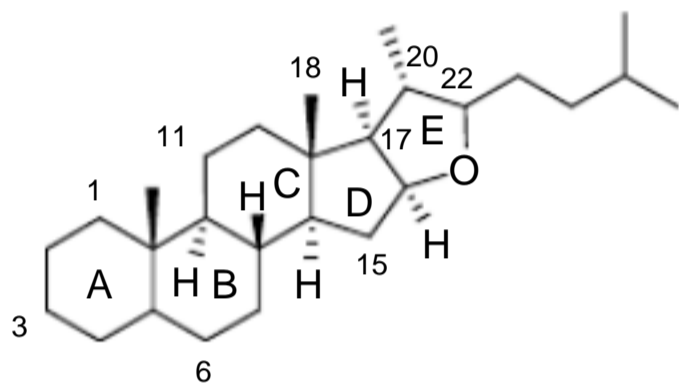


半系统名：(25R)-螺甾-5-烯-3-醇 ((25R)-spirost-5-en-3-ol)

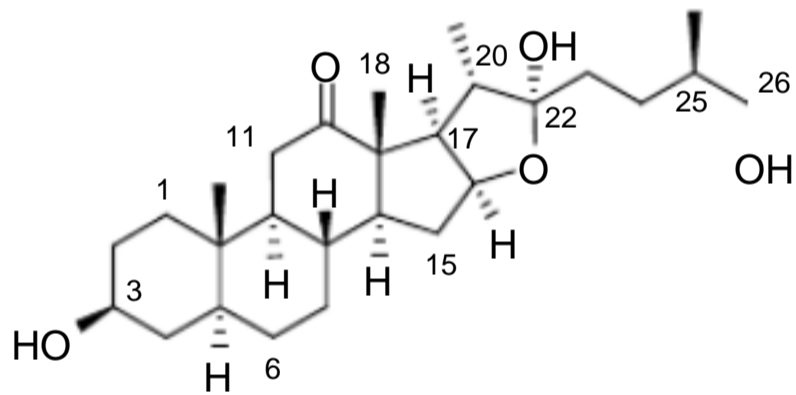
俗名：薯蓣皂苷元，薯蓣皂素 (diosgenin)

(2) 呋甾烷类

母体氢化物：呋甾烷 (furostane)



例：

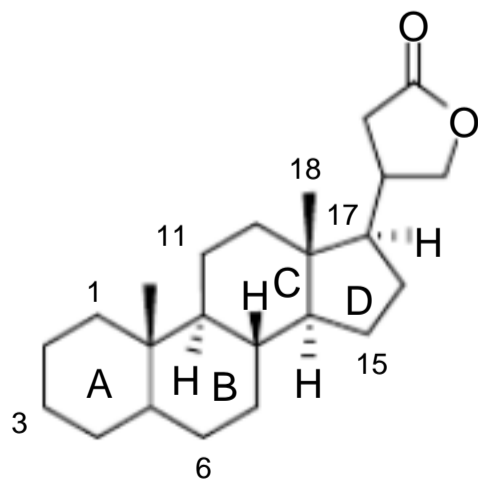


半系统名：(5,25R)-3,22,26-三羟基-呋甾-12-酮

((5,25R)-3,22,26-trihydroxy-furostan-12-one)

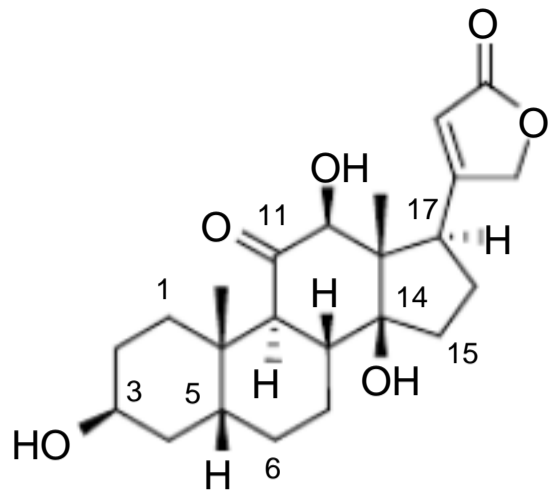
(3) 心甾内酯类

官能性母体：心甾内酯 (cardenolide)



采用官能性母体时的命名法。

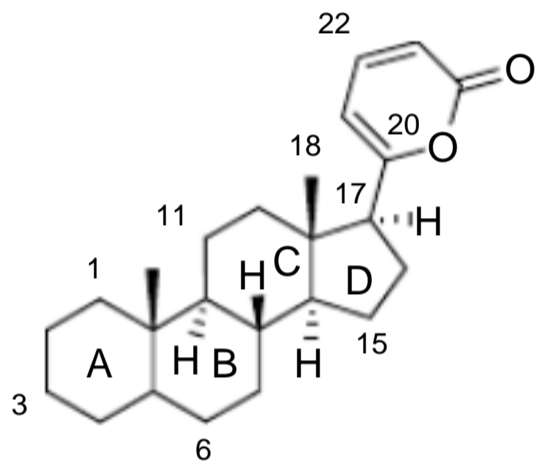
例：



半系统名：(5)-3,12,14-三羟基-11-氧亚基-心甾-20(22)-烯内酯
 ((5)-3,12,14-trihydroxy-11-oxo-card-20(22)-enolide)

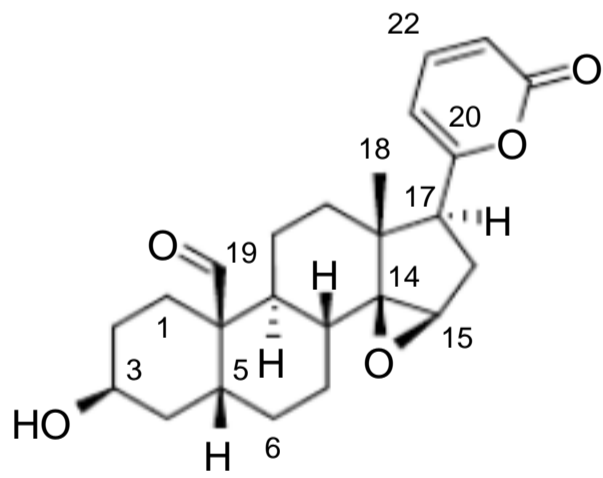
(4) 蟾甾内酯类

官能性母体：蟾甾内酯 (bufanolide)



采用官能性母体时的命名法。

例：



半系统名：(5-)-14,15-氧桥-3-羟基-19-氧亚基-蟾甾-20,22-二烯内酯
 ((5-)-14,15-epoxy-3-hydroxy-19-oxo-bufa-20,22-dienolide)

俗名：脂蟾毒精 (resibufagin)

[1] IUPAC and IUB Joint commission on biochemical nomenclature, Recommendations 1989: Nomenclature of Steroid, Pure Appl. Chem.1989, 61, 1783-1822.