

# Kemi der virker

Søren Munthe

Figurer til kapitel

2



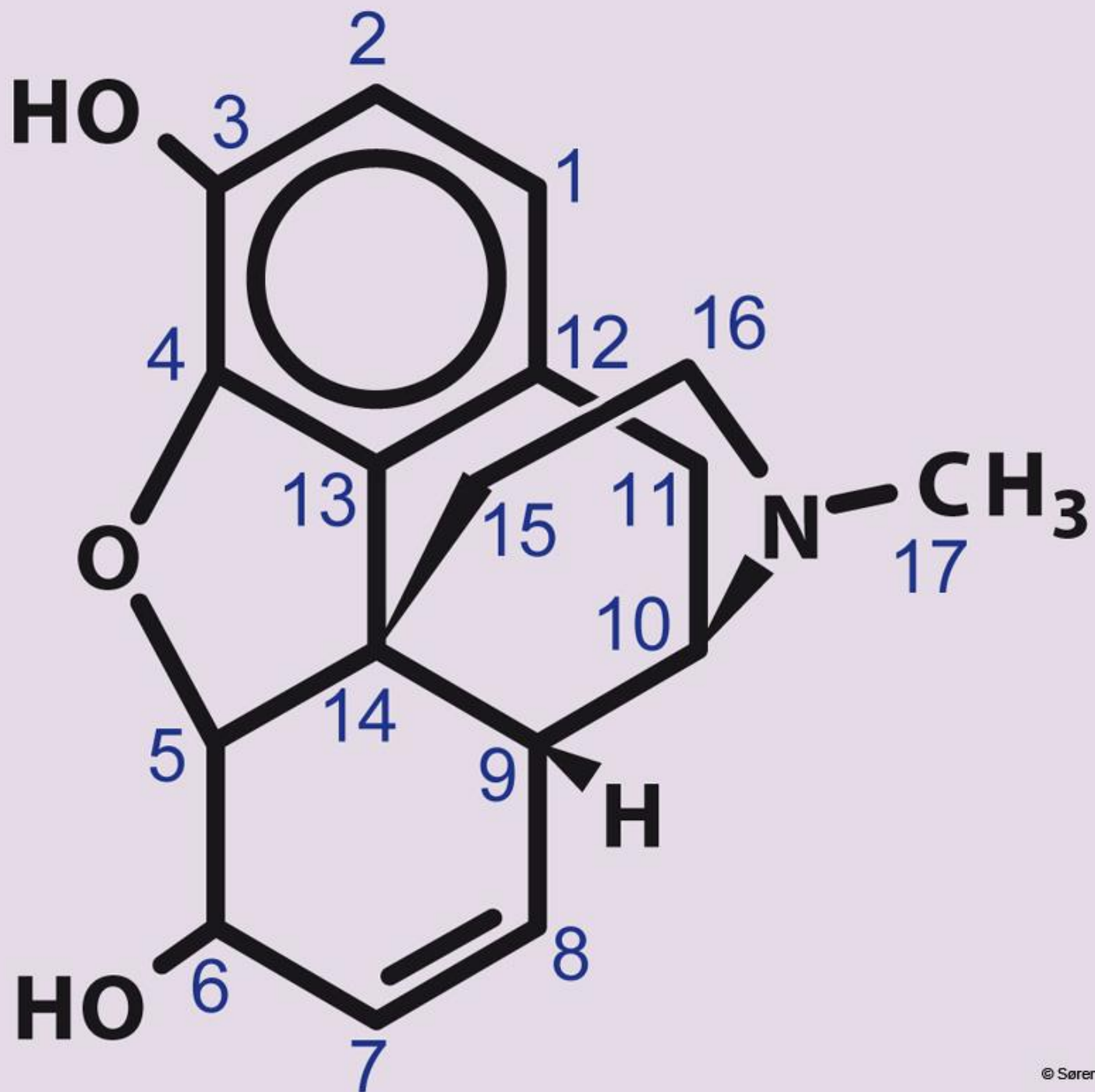
Aktivt stof/mest solgte mærke	2006	2008	2010
Paracetamol, alle mærker og pakningsstørrelser af tabletter med 500 mg	6147	6195	6055
<i>Panodil</i> (500 mg pr tablet i 10 stk blisterpakning) alene:	917	884	795
Acetylsalicylsyre, alle mærker og pakningsstørrelser af tabletter med 500 mg	2237	1968	1838
<i>Kodimagnyl</i> (500 mg acetylsalicylsyre pr tablet i 10 stk blisterpakning) alene:	477	415	408
Ibuprofen, alle mærker og pakningsstørrelser af tabletter med 200 mg	1265	1353	1511
<i>Ipren</i> (200 mg pr tablet i 20 stk blisterpakning) alene:	555	591	619

*10 mg/ml*  
**MORfin**  
**SAD 10 mg/ml**

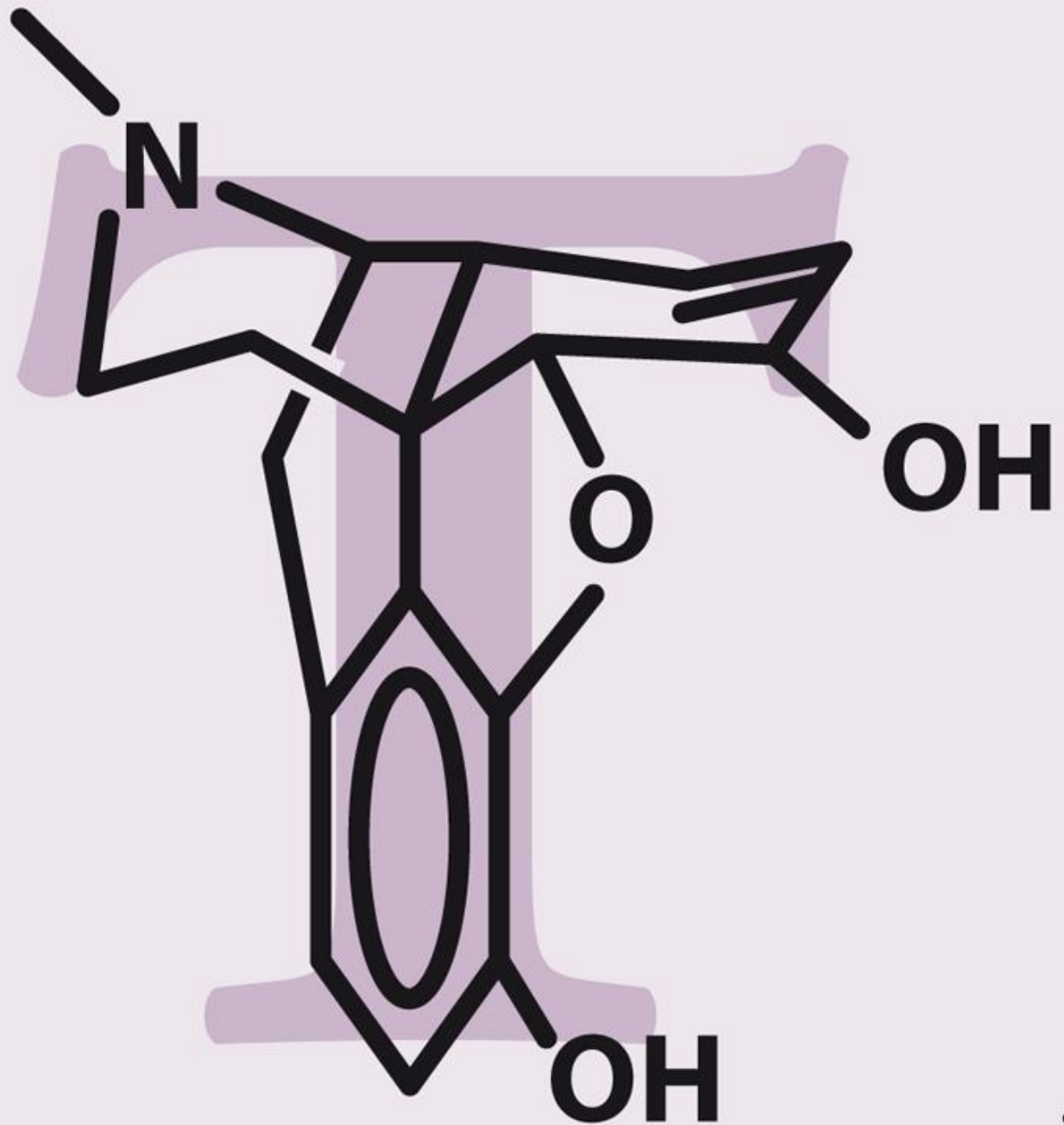
Injektionsvæske,  
im, iv, sc  
Anv. inden:

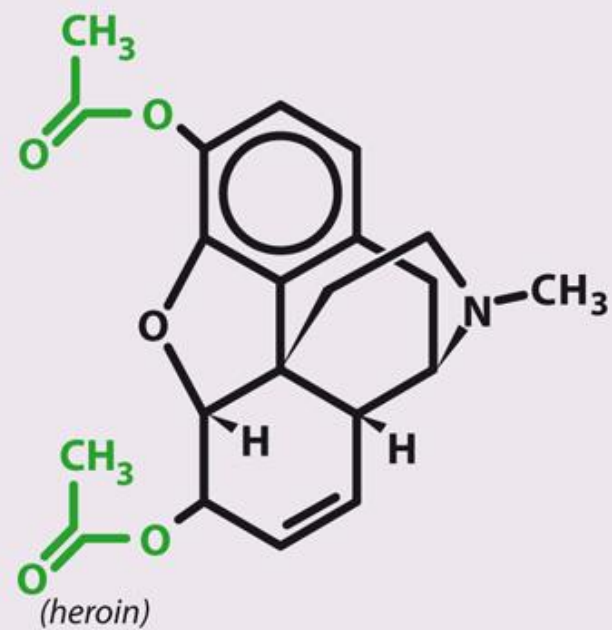
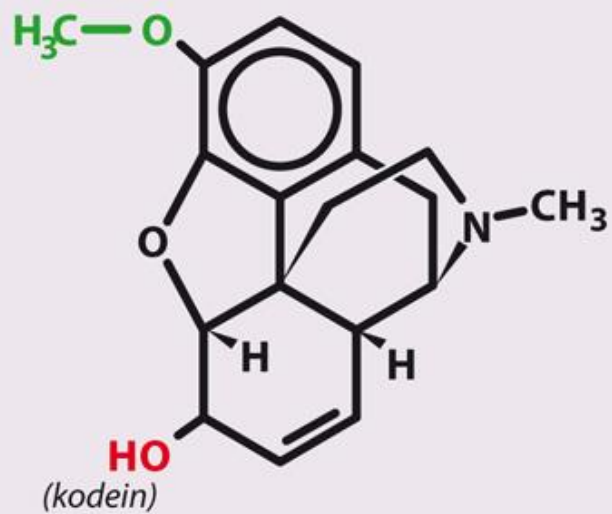
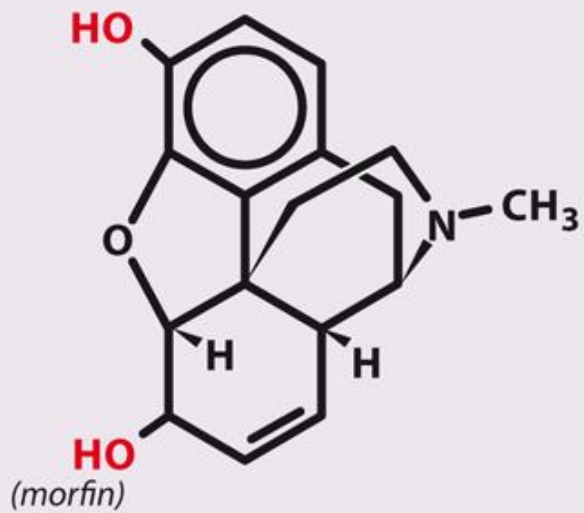
**1 ml**







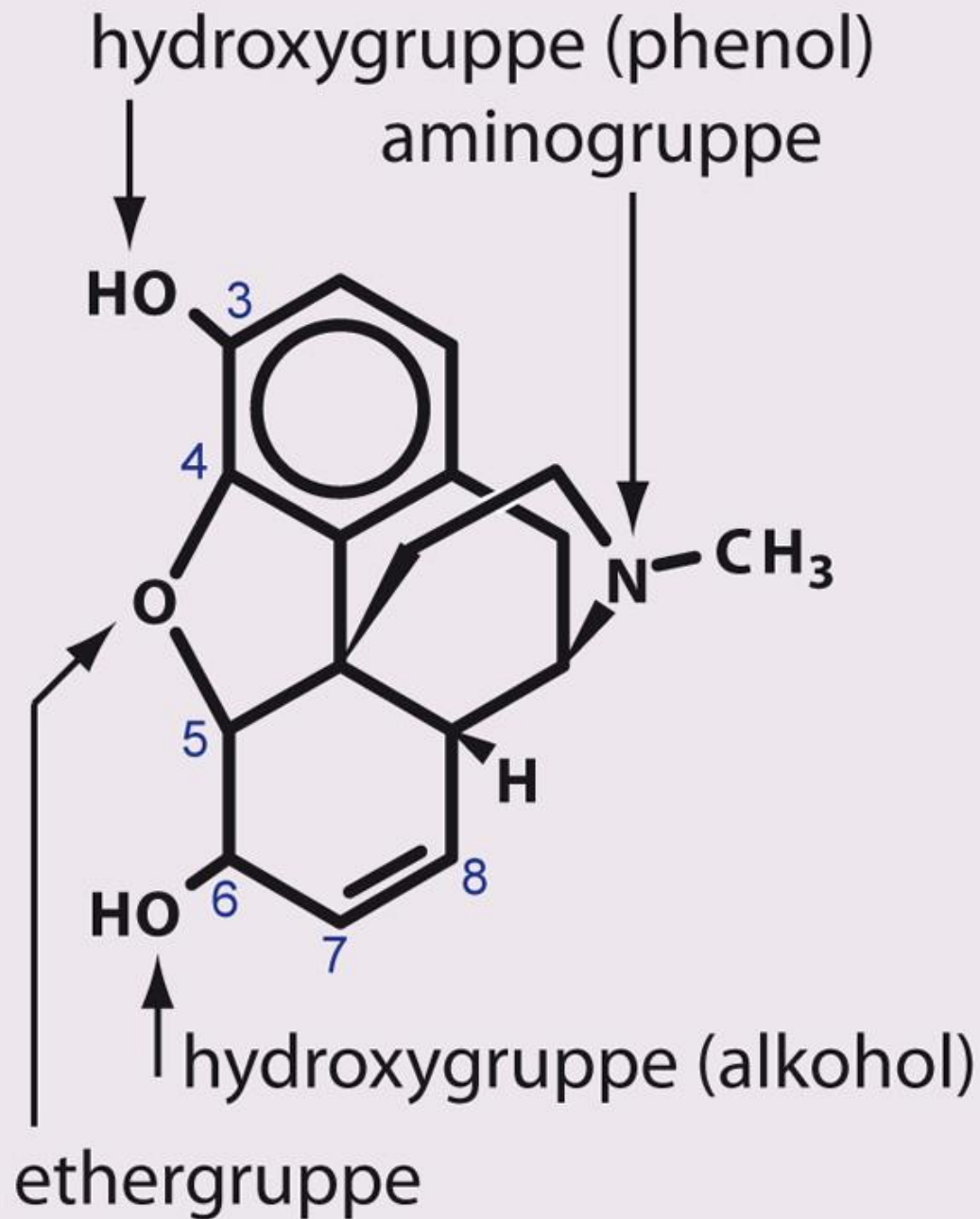


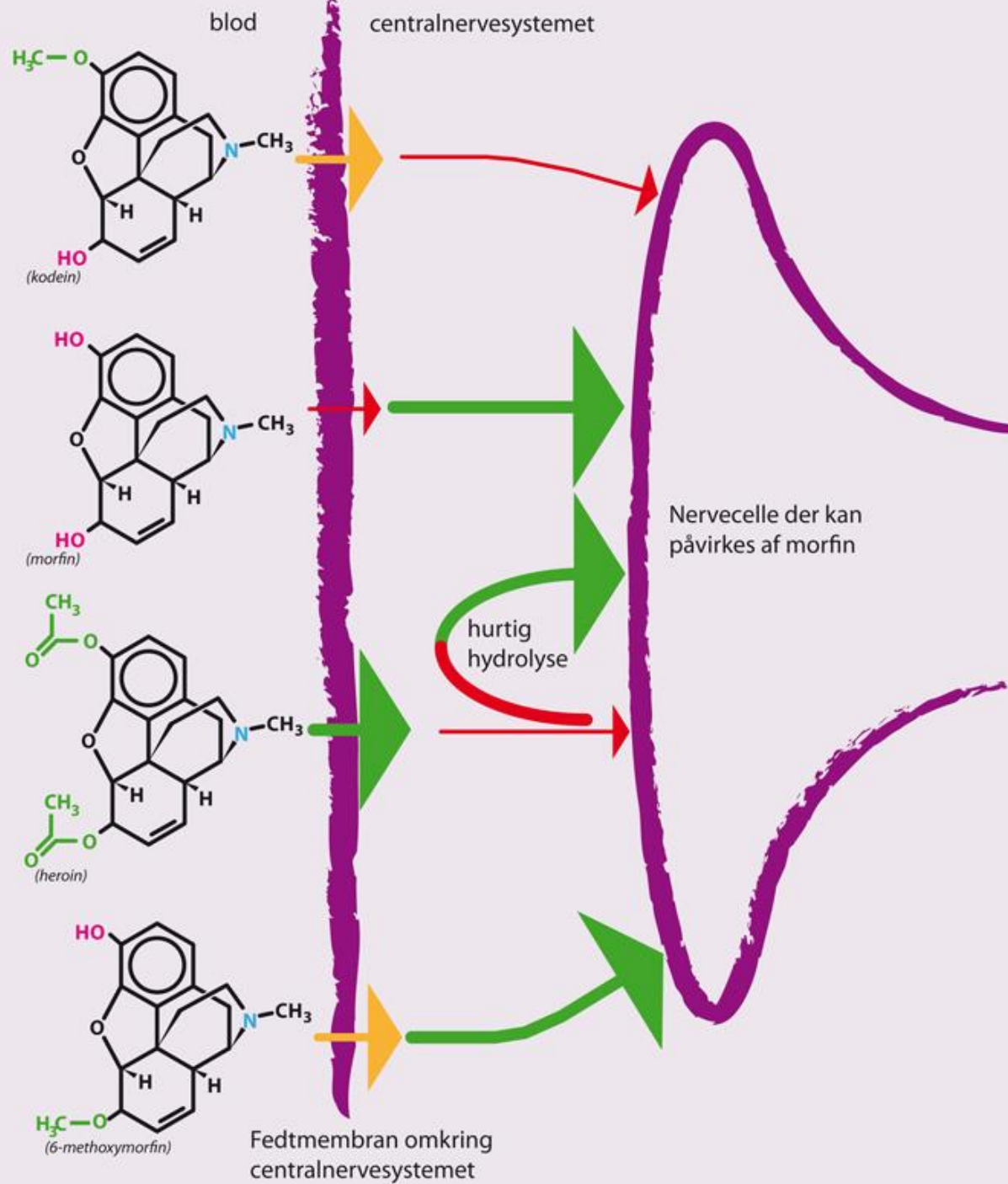


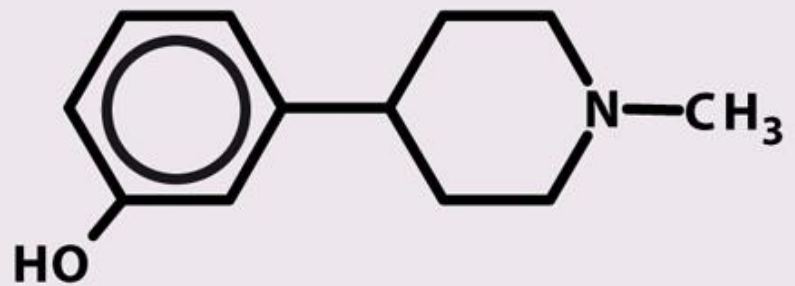
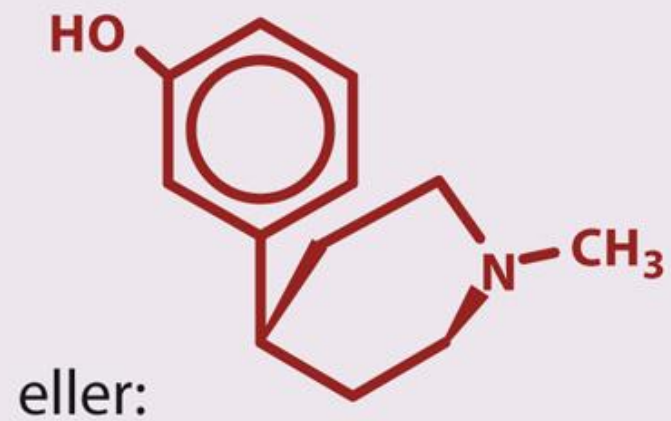
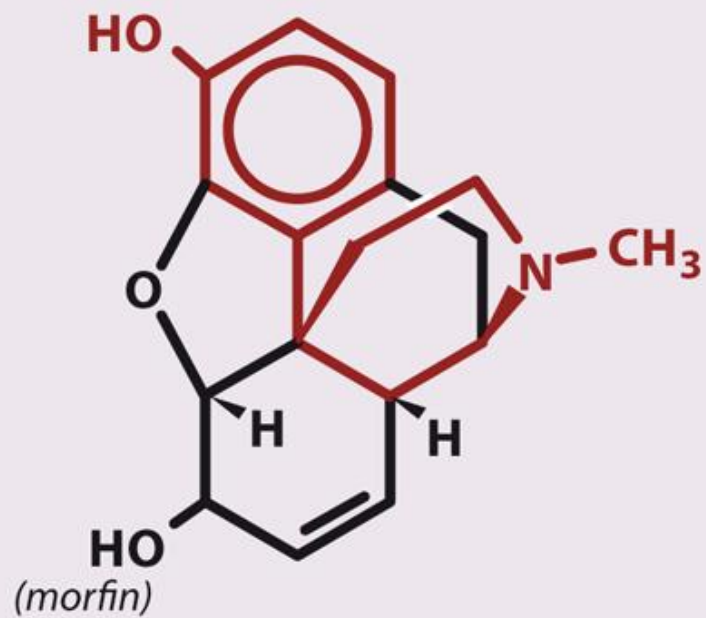
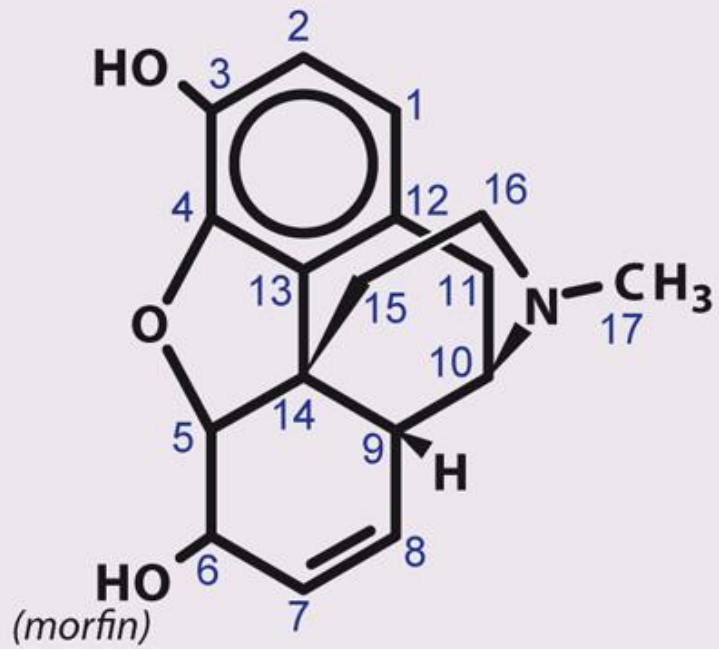


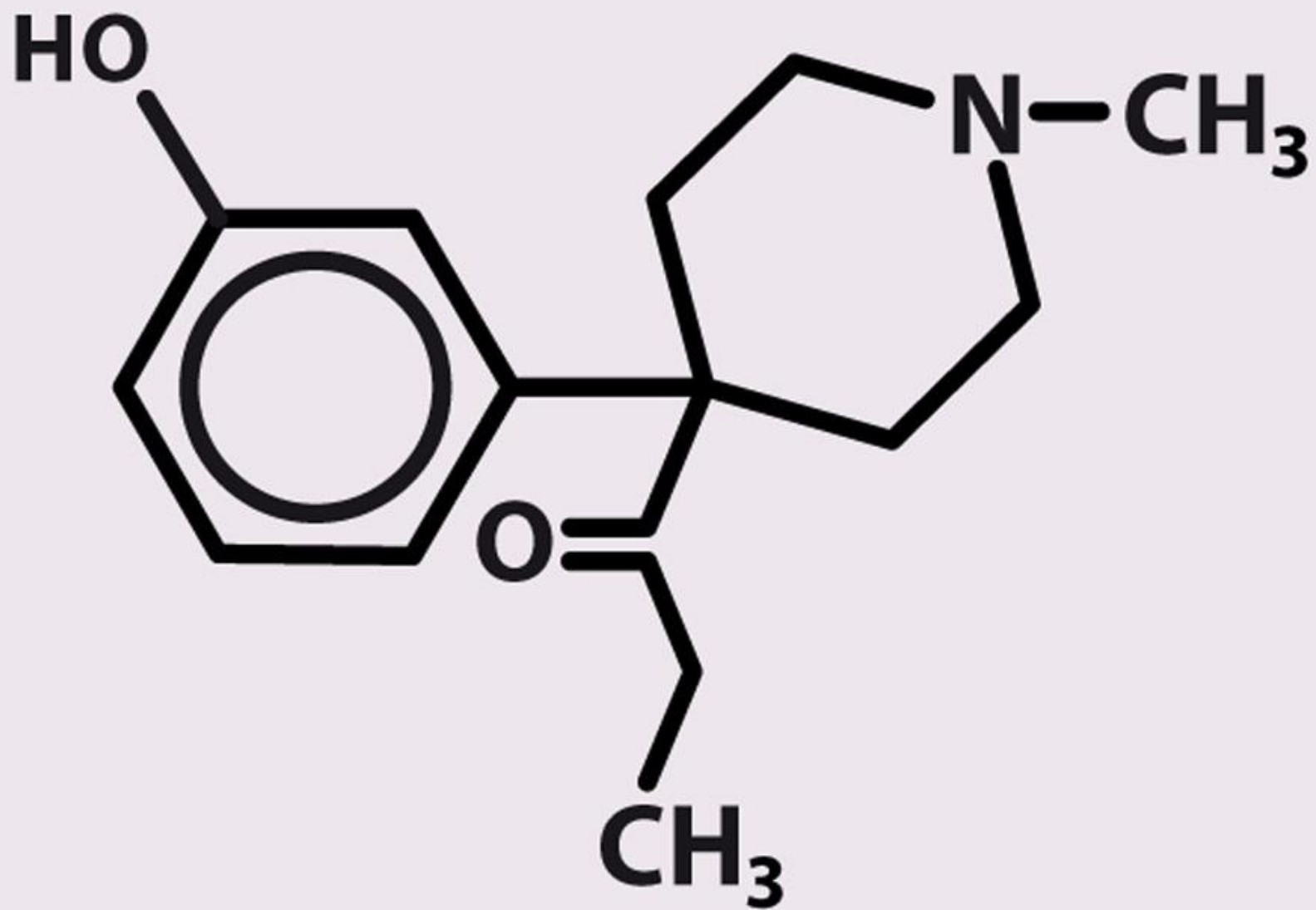


	Døgndoser pr 1000 indbygger pr døgn	
	2003	2007
<b>Svagere smertestillende lægemidler</b>		
Ibuprofen	16,8	20,6
Acetylsalicylsyre (alene)	1,3	0,7
Acetylsalicylsyre (kombineret)	11,9	10,0
Paracetamol	52,1	59,0
<b>Stærke smertestillende lægemidler</b>		
Morfin	2,1	1,8
Oxycodon	0,9	2,1
Methadon	3,0	5,1
Fentanyl	1,1	1,6
Tramadol	6,3	8,0

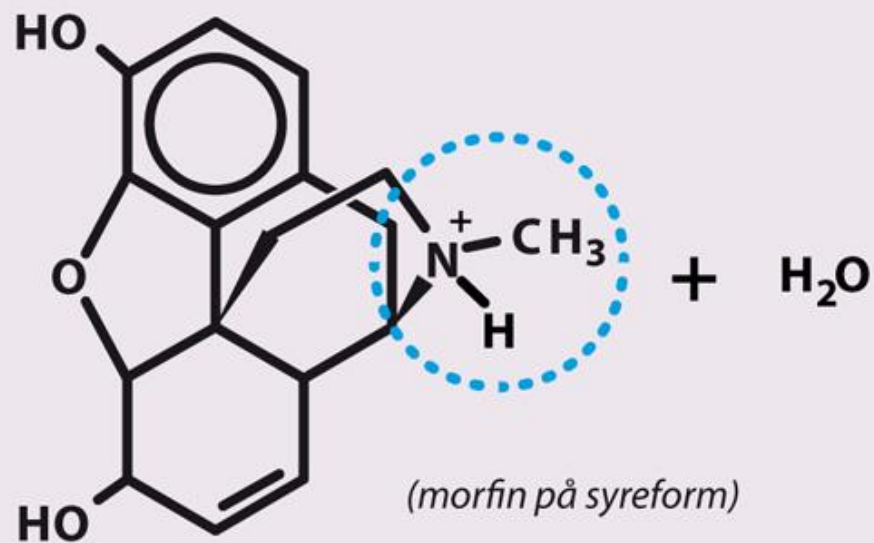
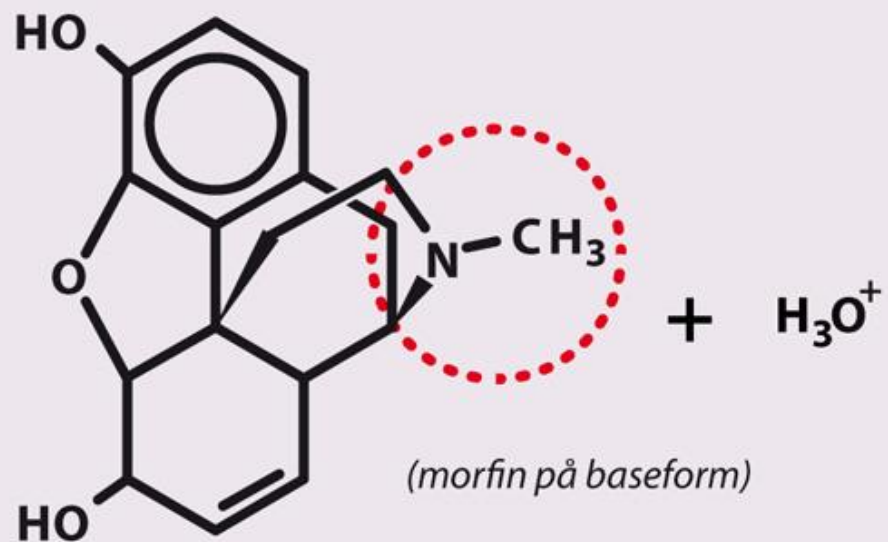


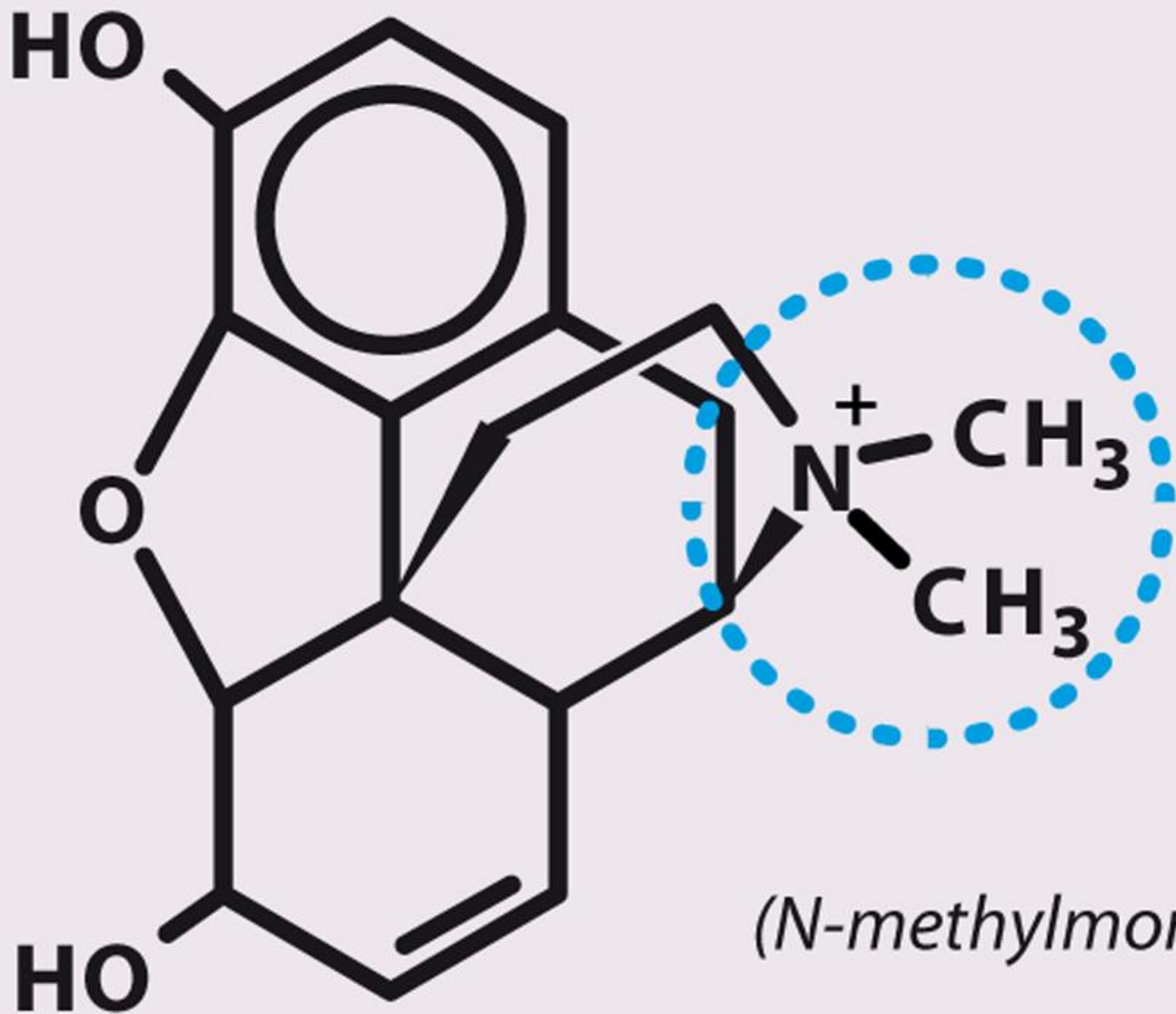




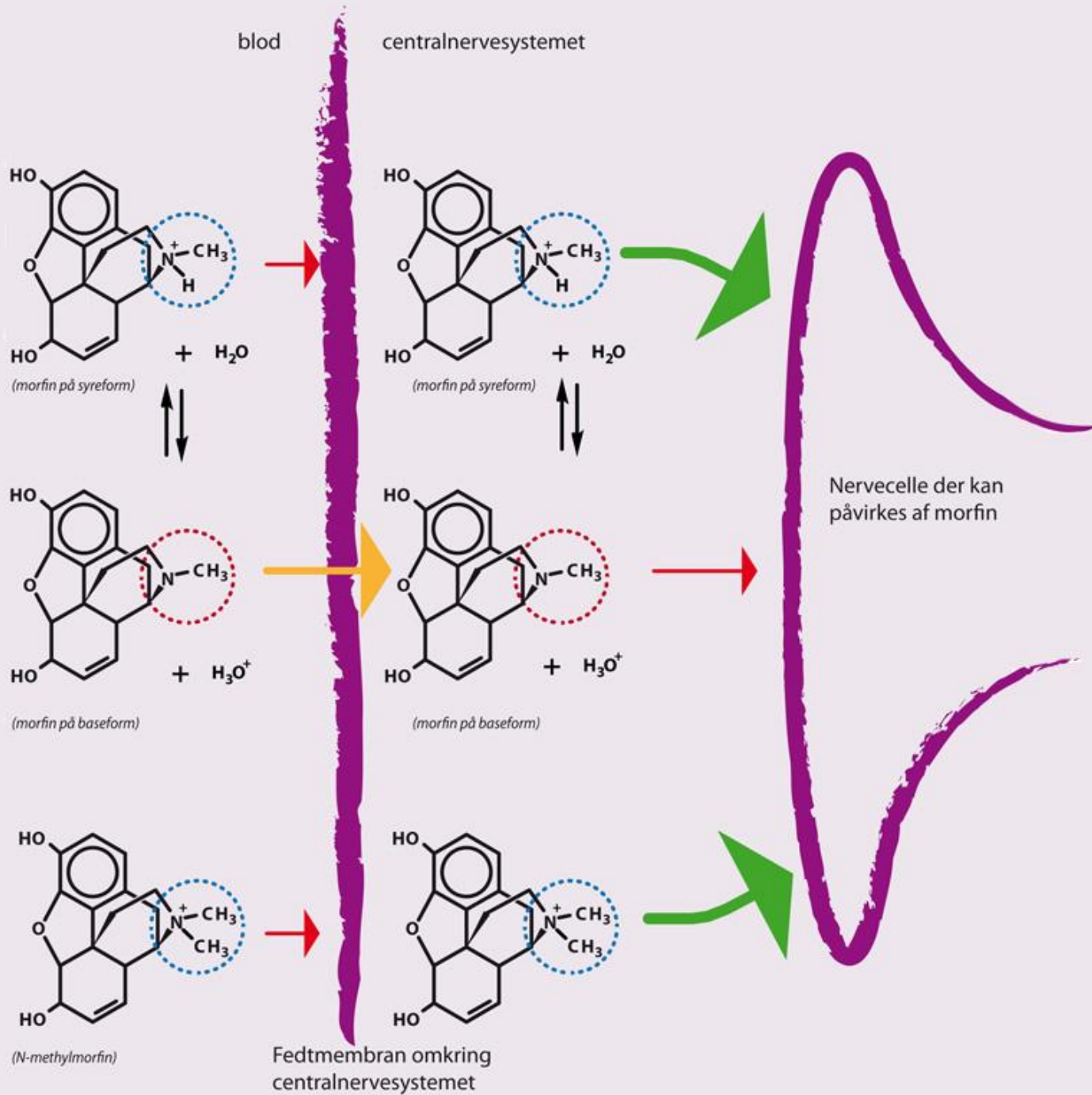


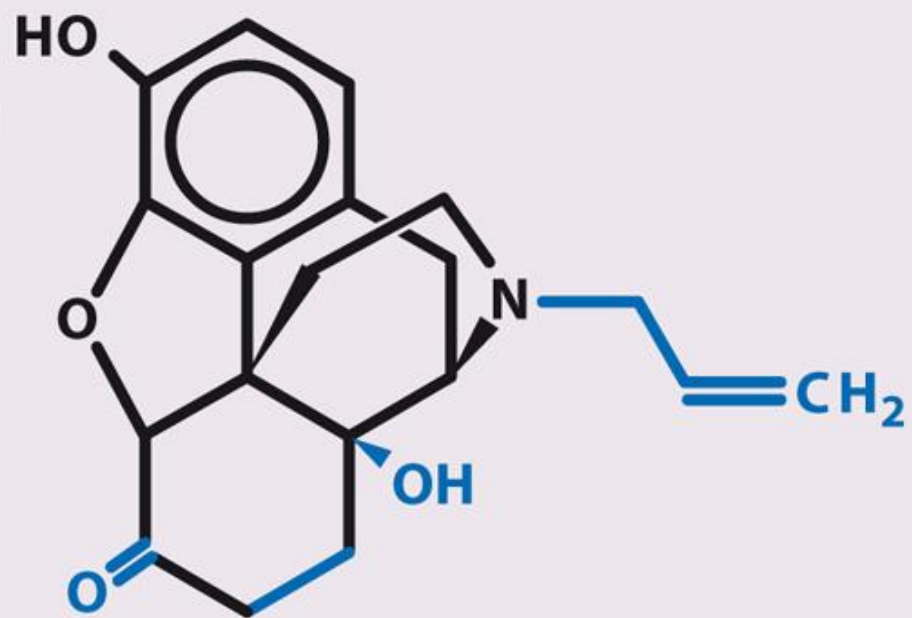
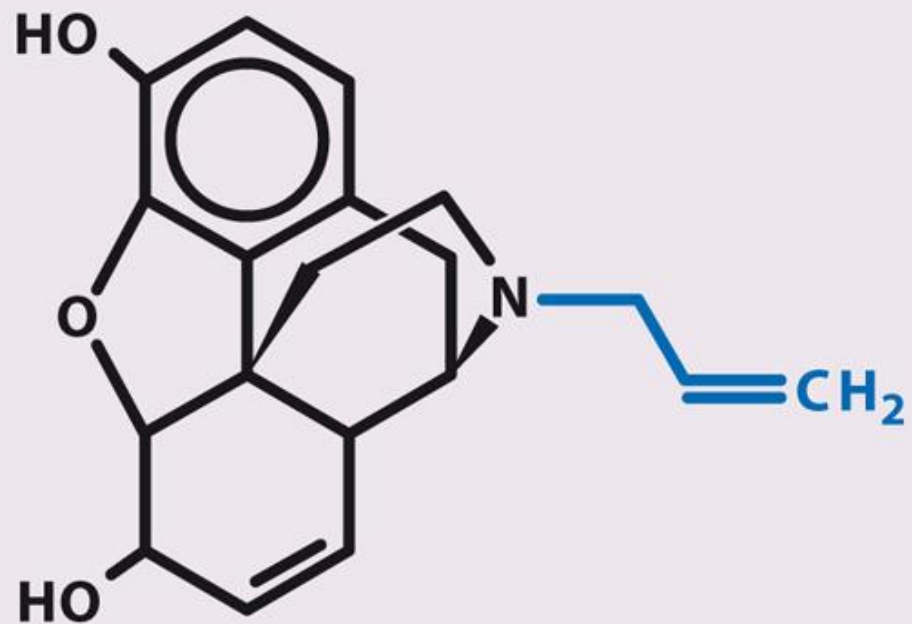




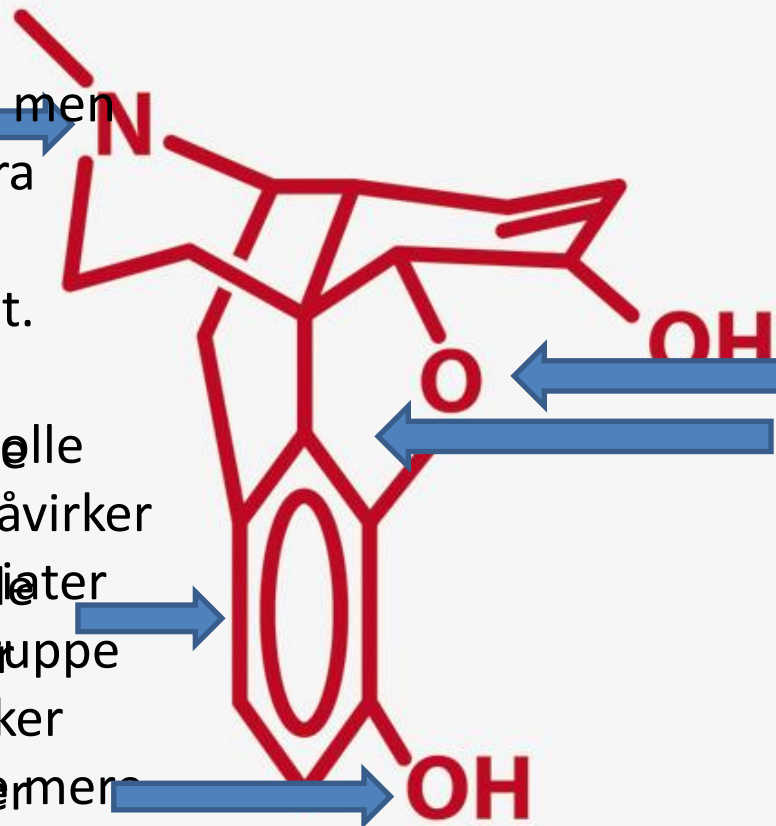


*(N-methylmorphine)*



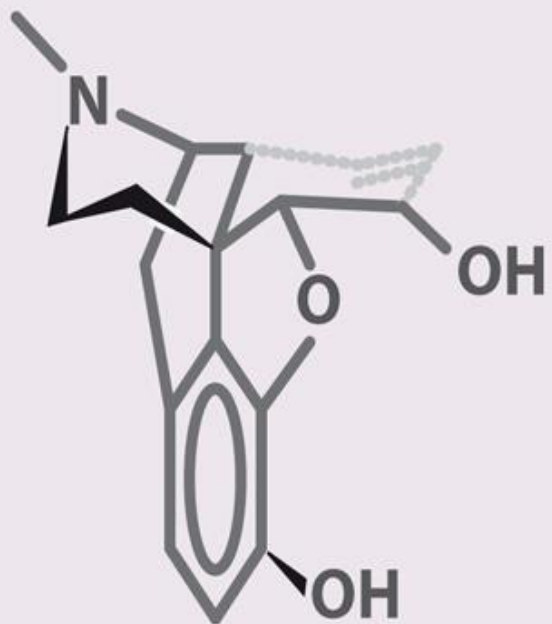


Den **tertiære ammin** er vigtig for virkningen som smertestillende lægemiddel. Den polære hydroxygruppe øger vandopløseligheden, men Aminogruppens hammer passagen fra blodet ind til centralnervesystemet. Desuden stiller positivt ladet en hydroxygruppe en aktivitet for hvordan stoffet påvirker benecellerne. De opstår fra hydroxygruppen på benzeringen, virker generelt 10-20 gange mere effektivt end de tilsvarende stoffer uden denne hydroxygruppe.

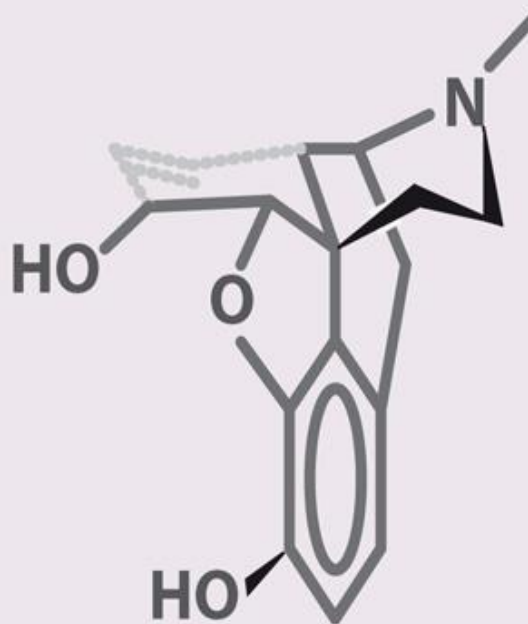


Den komplicerede **ringstruktur** er ikke vigtig, og der findes virksomme stoffer uden. Den **alkohol** er ikke afgørende for morfins aktive virkning som smertestillende. Ethergruppen er til at stabilisere den placerings af de aktive grupper, men mangler opløselighed har ikke en gruppe, og den kan sættes undværes passagen fra blodet ind i centralnervesystemet.

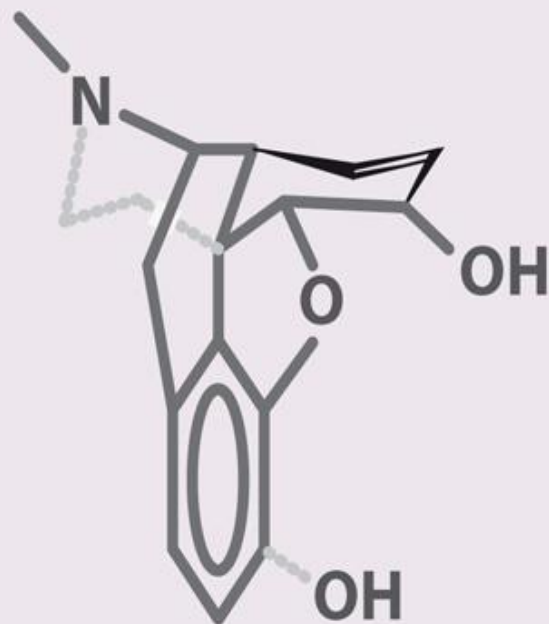
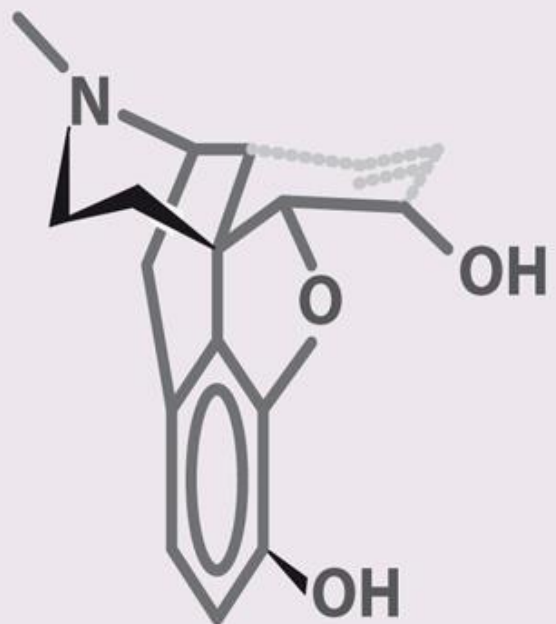


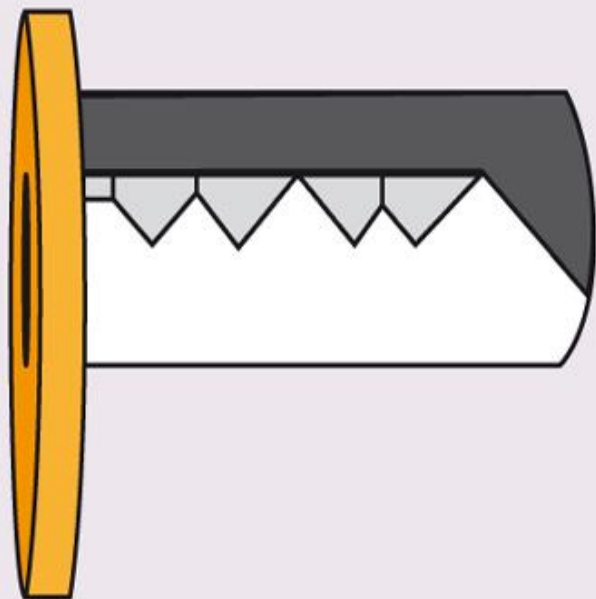
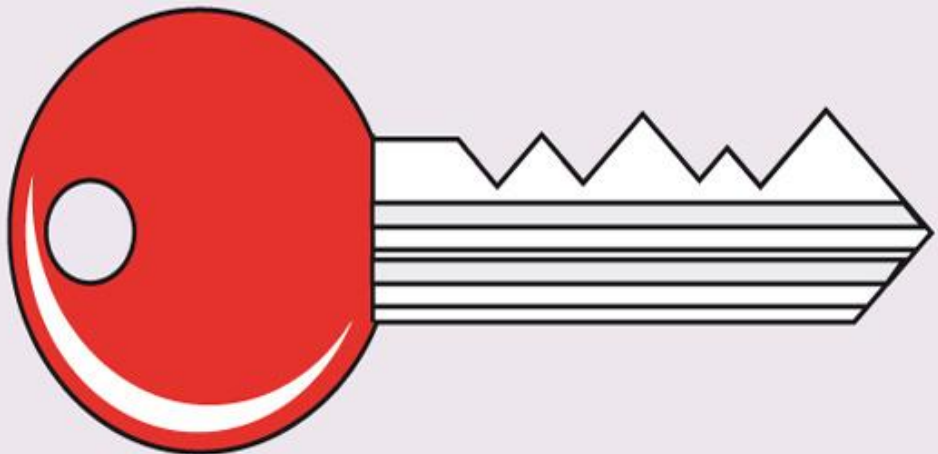
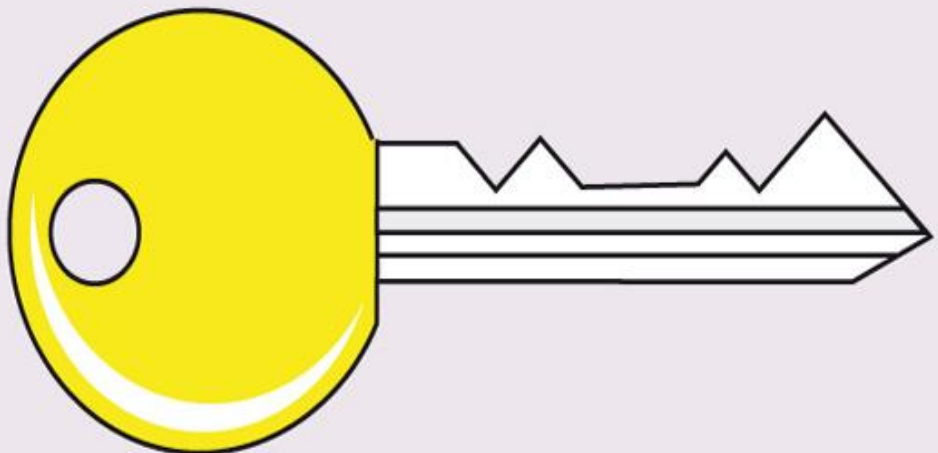
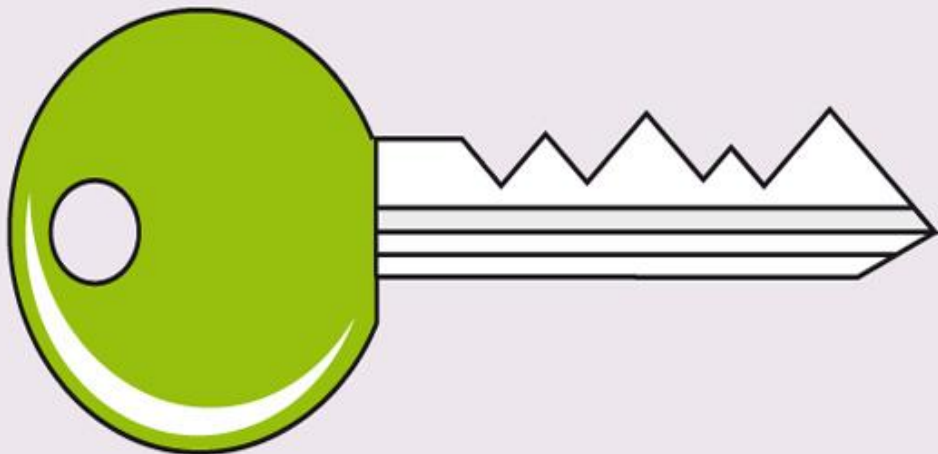


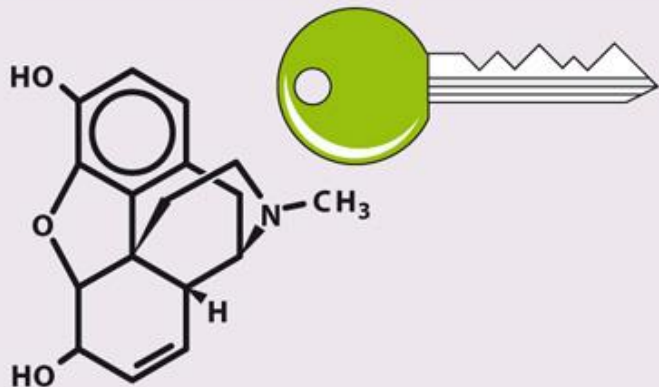
*(-)-morphin*



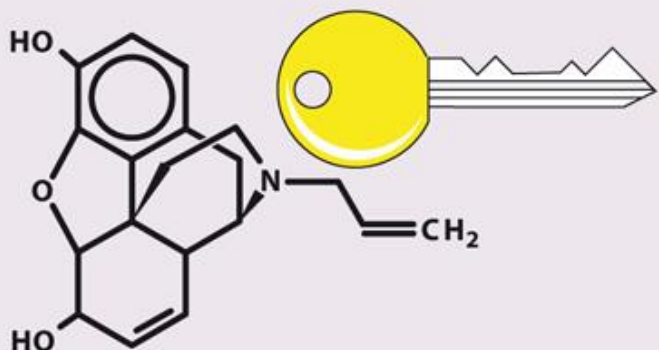
*(+)-morphin*



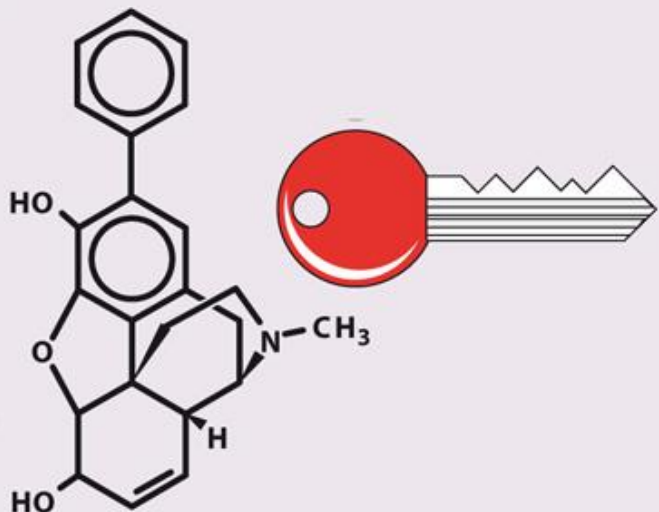




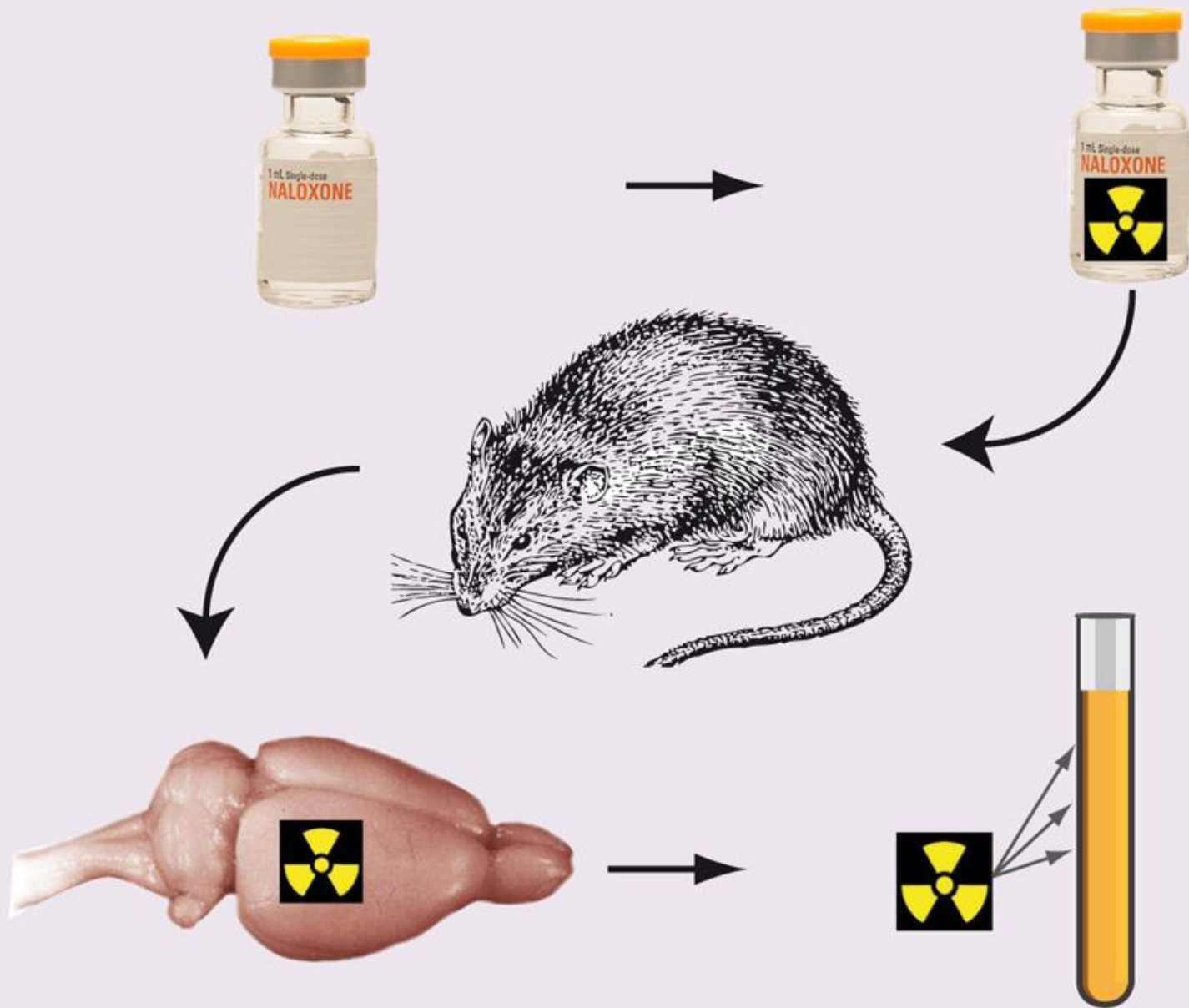
*Morfin svarer til den grønne nøgle: molekylet kan komme ind i receptoren og påvirker den, så der sker en ændring af nervecellens signal.*

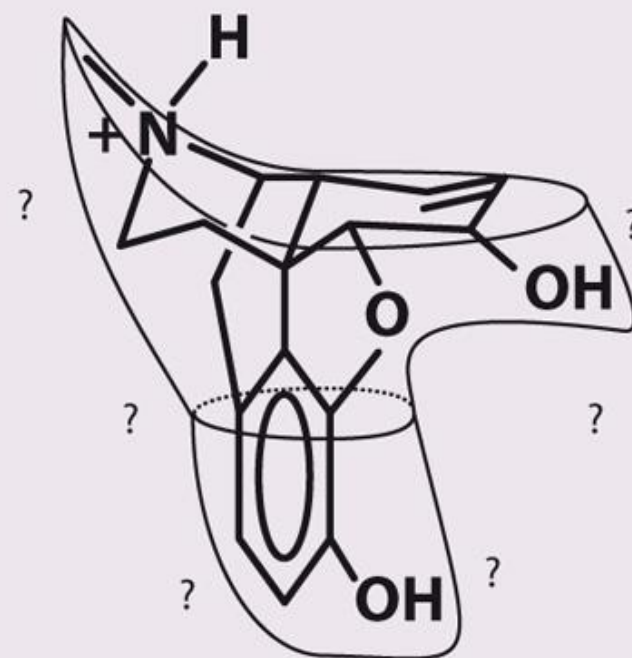
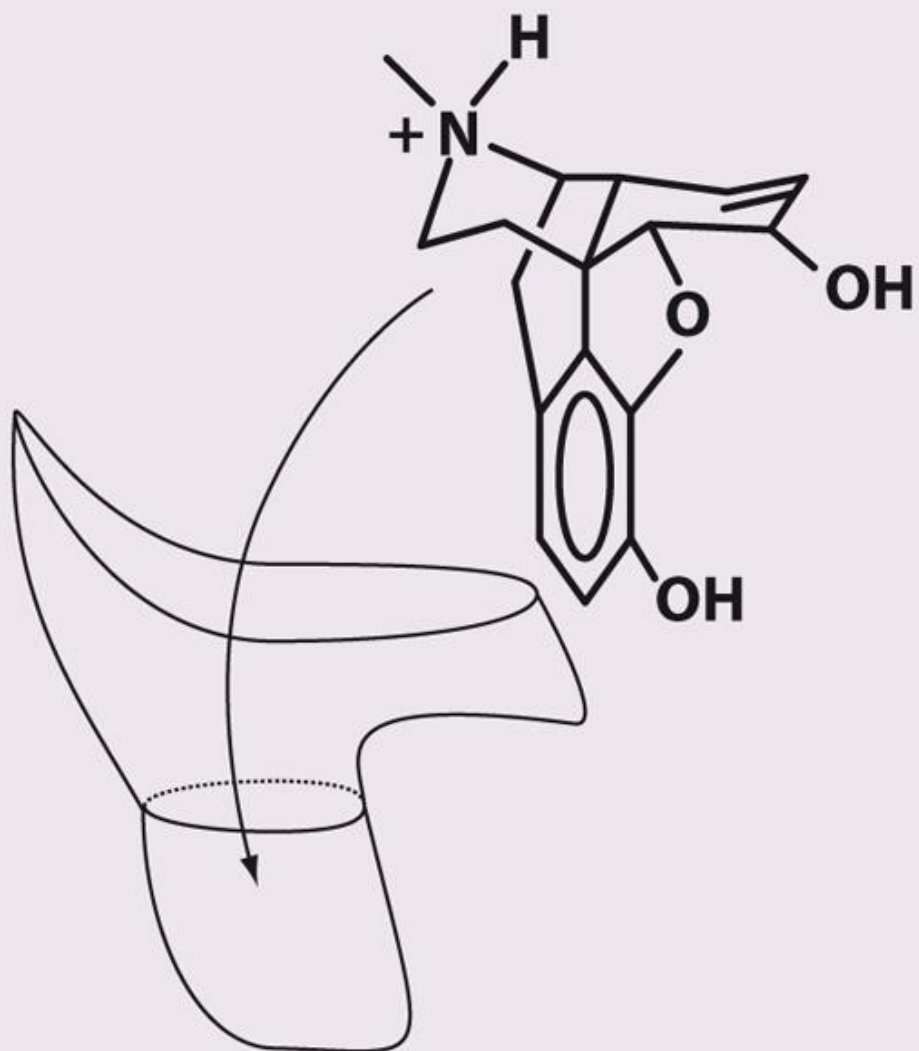


*Nalorfin svarer til den gule nøgle: molekylet passer ind i receptoren, men receptoren bliver ikke påvirket, og nervecellens signal ændres ikke. Men molekylet blokerer for at andre - måske virksomme forbindelser - kan komme ind til receptorens aktive sted.*

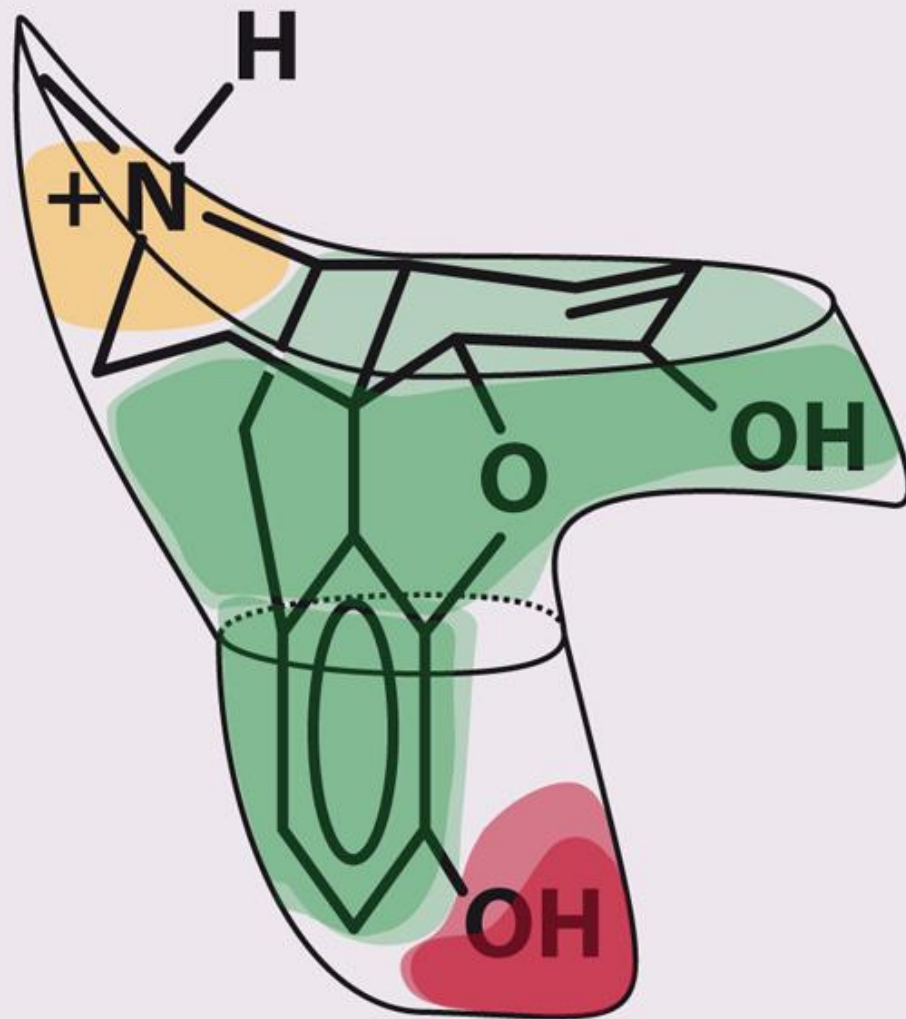
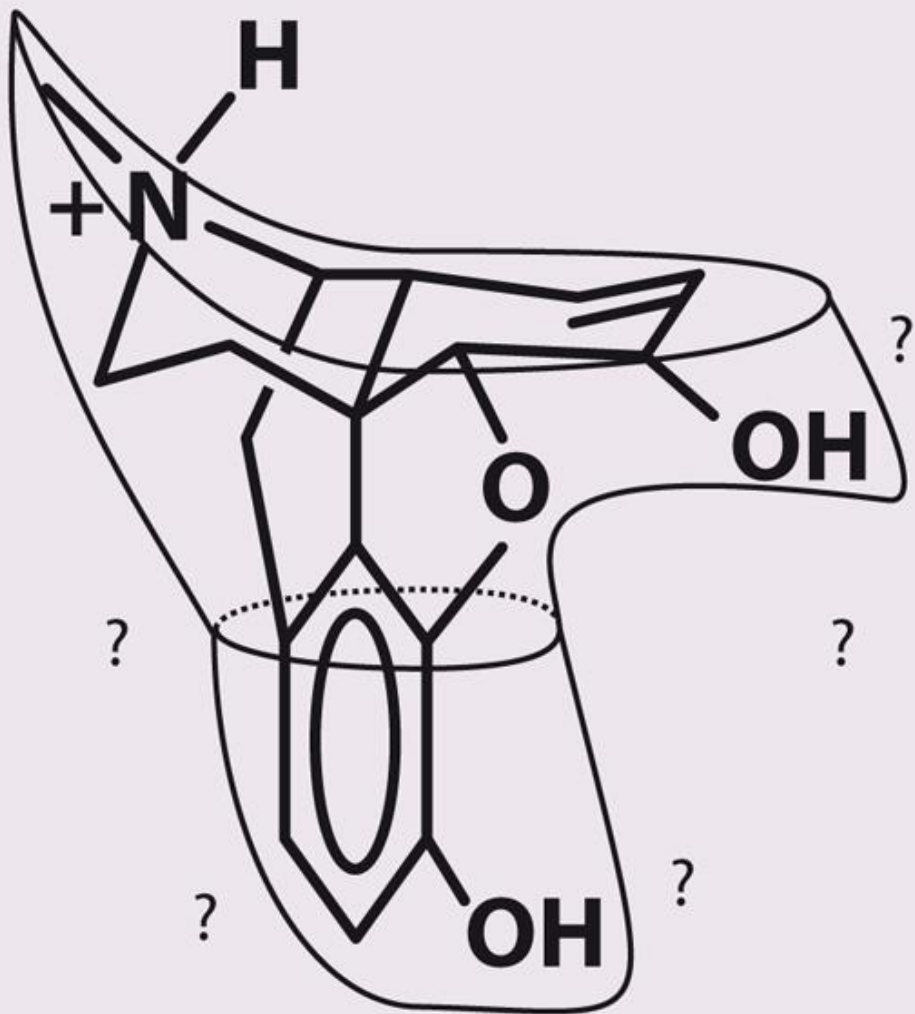


*2-phenylmorfin svarer til den røde nøgle: molekylet er for stort til at det kan komme ind i receptoren, og selvom alle de rigtige grupper sidder de rigtige steder, har stoffet ingen virkning.*











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