

↑ Unionised fraction
= Fast **onset**

Duration of action
determined by:



Distribution
(e.g. Fentanyl short due to ↑ V_D)



Elimination
(e.g. Remifentanyl short due to rapid ester hydrolysis)

Anaestheasier

Novice

Summary Sheet: Opioids

μ_1 Receptors



Analgesia & Euphoria

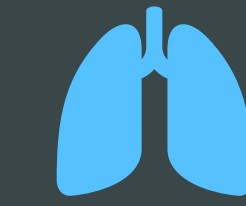


Miosis

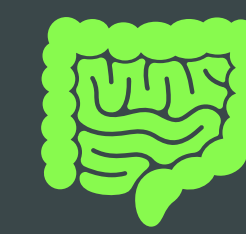
μ_2 Receptors



↓ HR



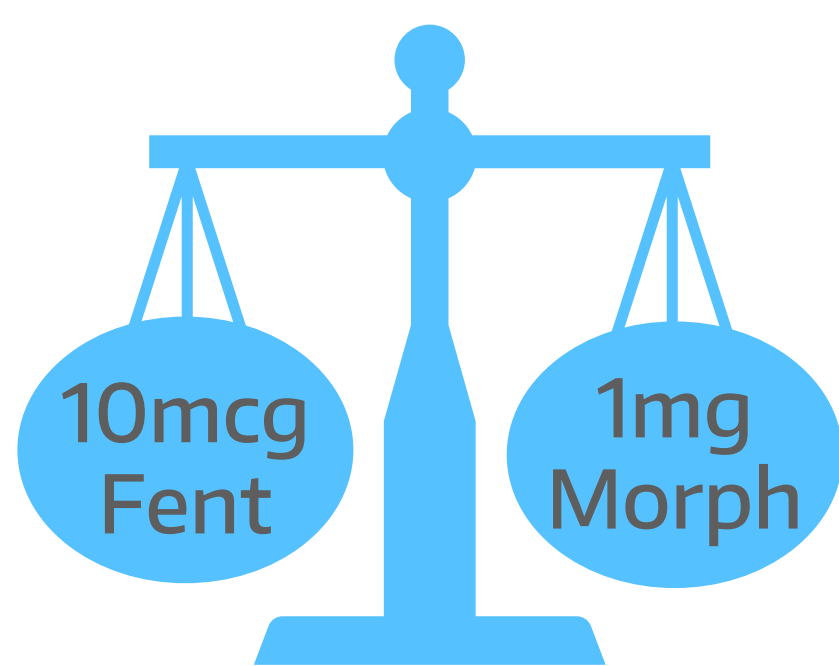
Respiratory Depression



↓ Gut Motility

μ

Fentanyl



50mcg/ml



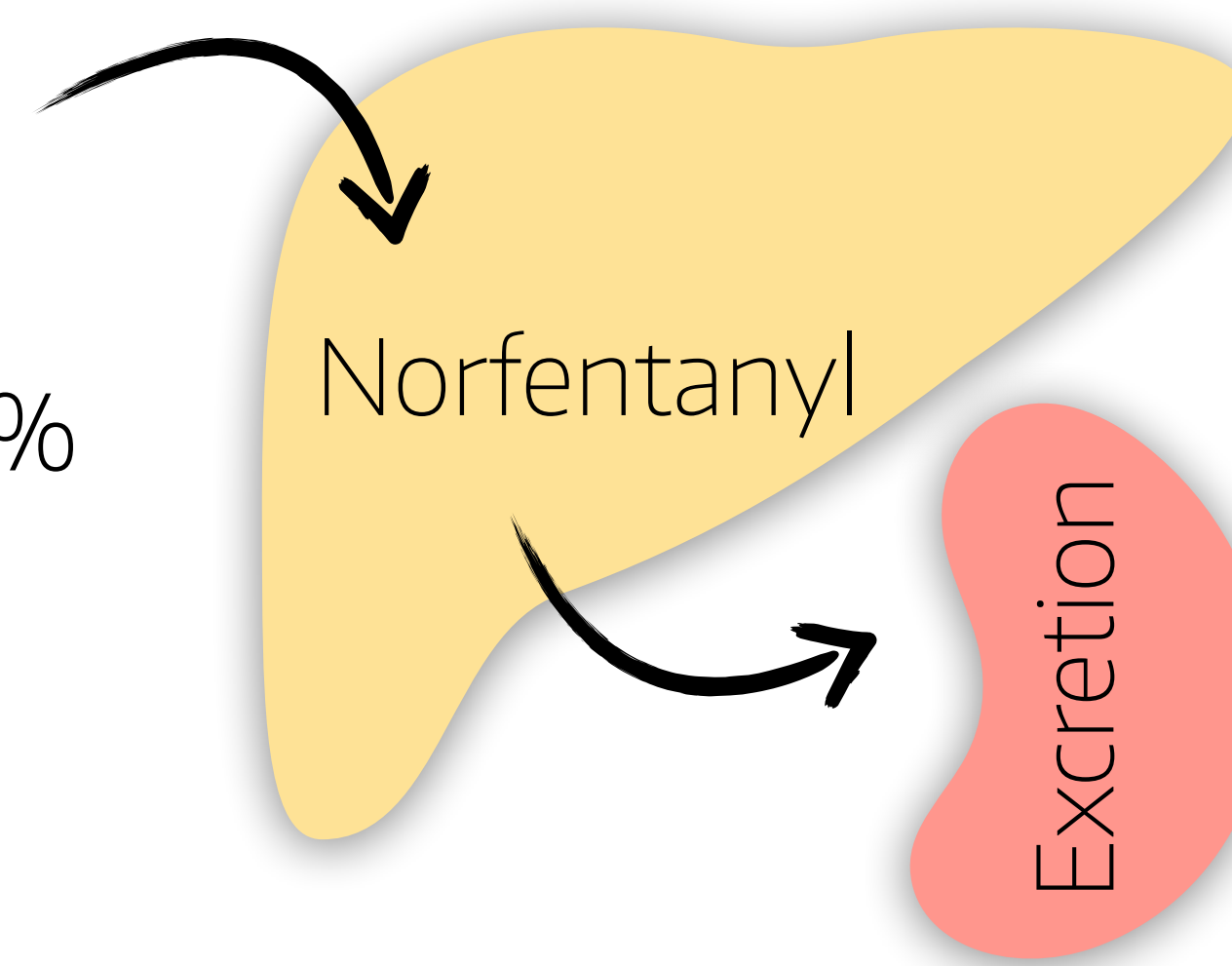
pKa **8.4**

Unionised at pH 7.4: 9%

V_D 4L/kg

Cl 13ml/kg/min

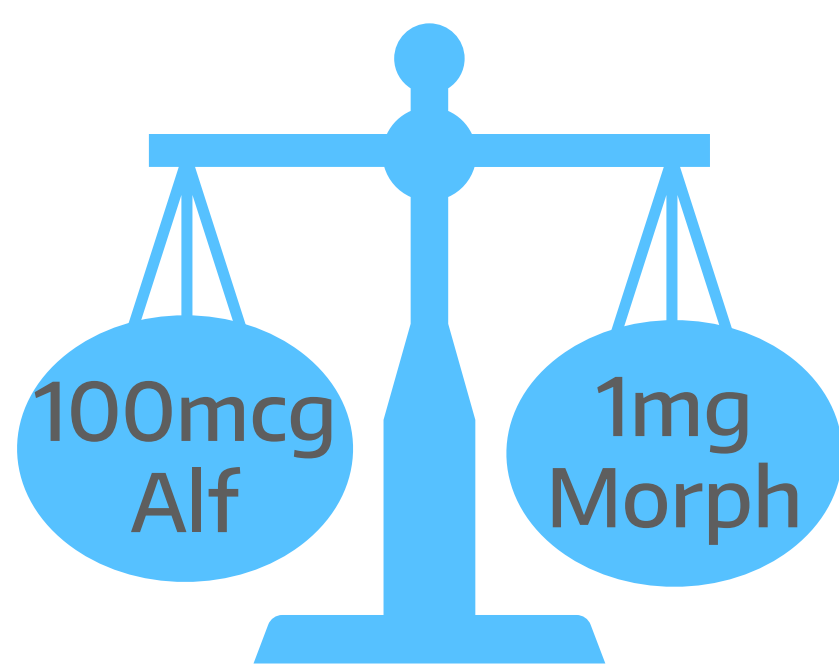
Terminal $t_{1/2}$: 190mins



- ✓ Induction analgesia
- ✓ Fast-acting
- ✓ Short-acting
- ✓ Renal failure PCAs

μ

Alfentanil



500mcg/ml



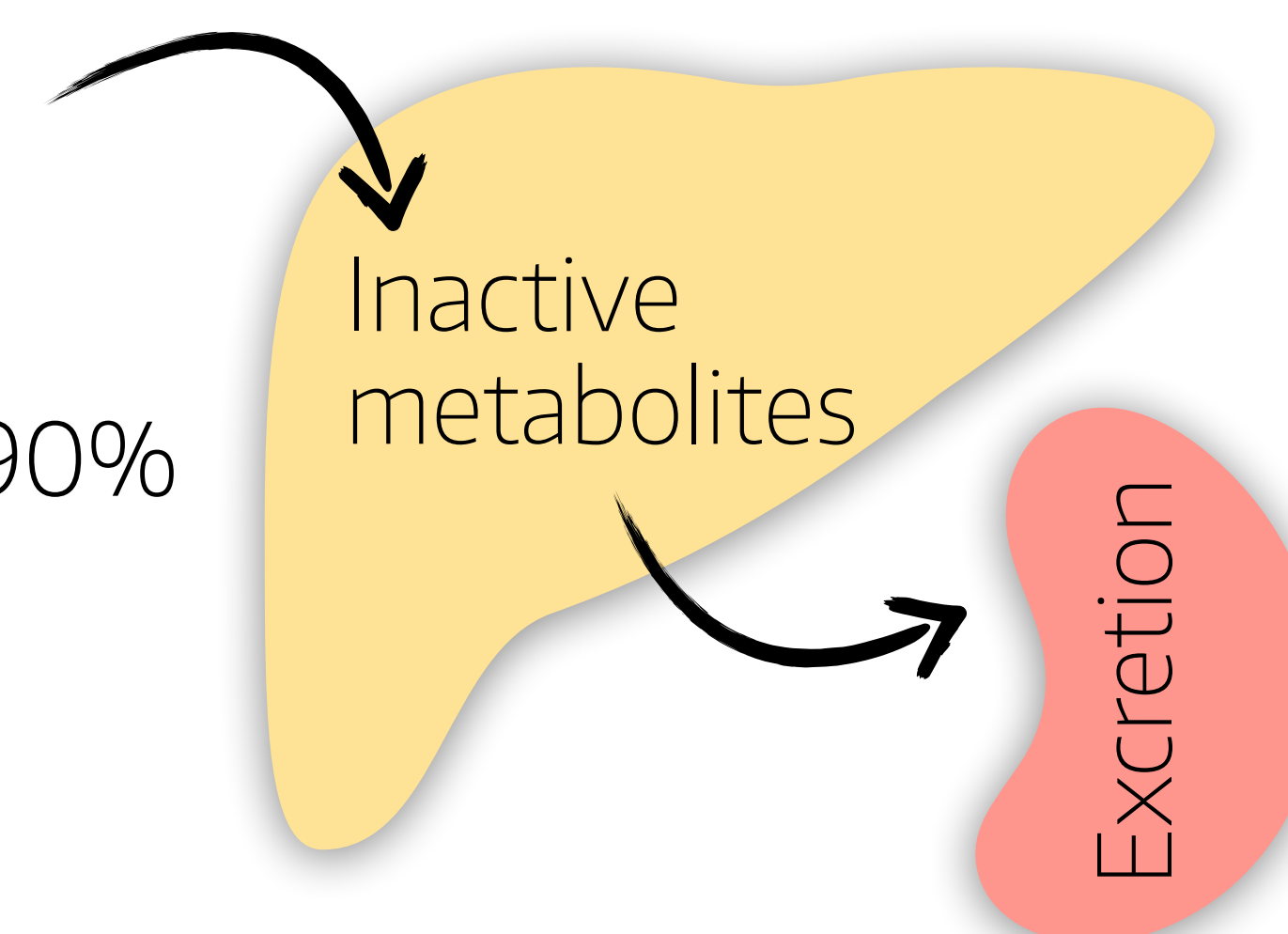
pKa **6.5**

Unionised at pH 7.4: 90%

V_D 0.4-1.0L/kg

Cl 6ml/kg/min

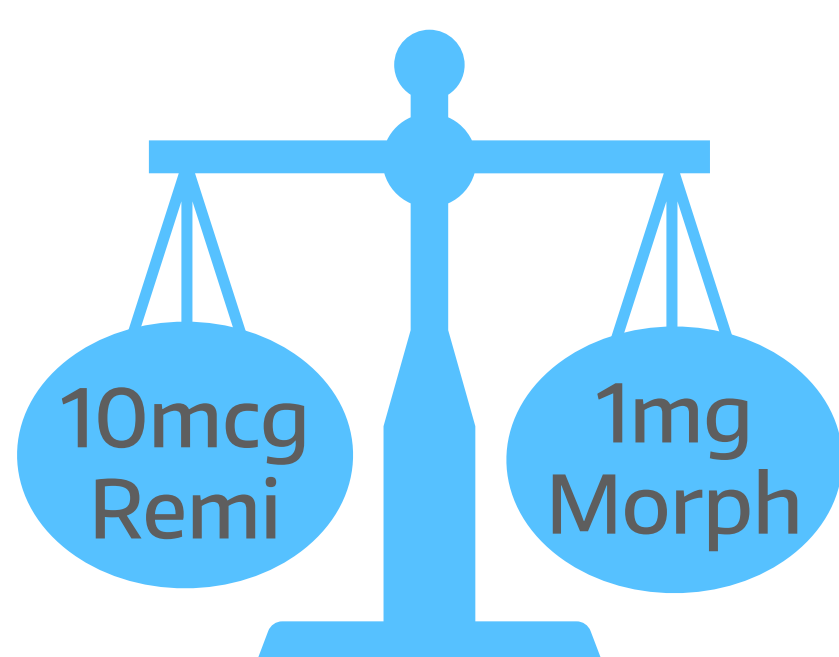
Terminal $t_{1/2}$: 100mins



- ✓ Induction analgesia
- ✓ Ultrafast-acting
- ✓ Ultrashort-acting

μ

Remifentanyl



1mcg /
2mcg /
5mcg



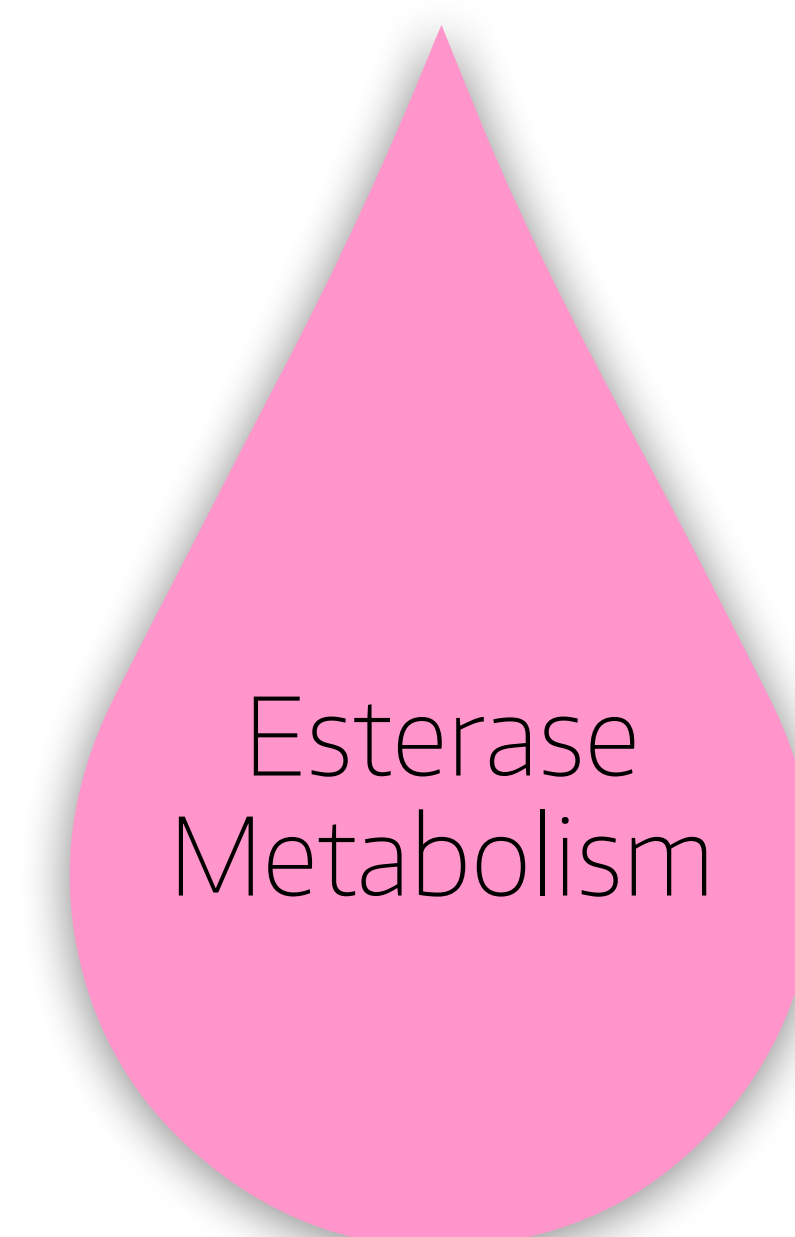
pKa **7.1**

Unionised at pH 7.4: 70%

V_D 0.2-0.3L/kg

Cl 30-40ml/kg/min

Terminal $t_{1/2}$: 3-10mins



- ✓ IV Infusion analgesia
- ✓ AFOIs / extubation
- ✓ Ultrafast-acting
- ✓ Shortest-acting

$\mu + \kappa$

Morphine

Generally diluted with saline in a 10ml syringe to 1mg/ml

10mg/ml



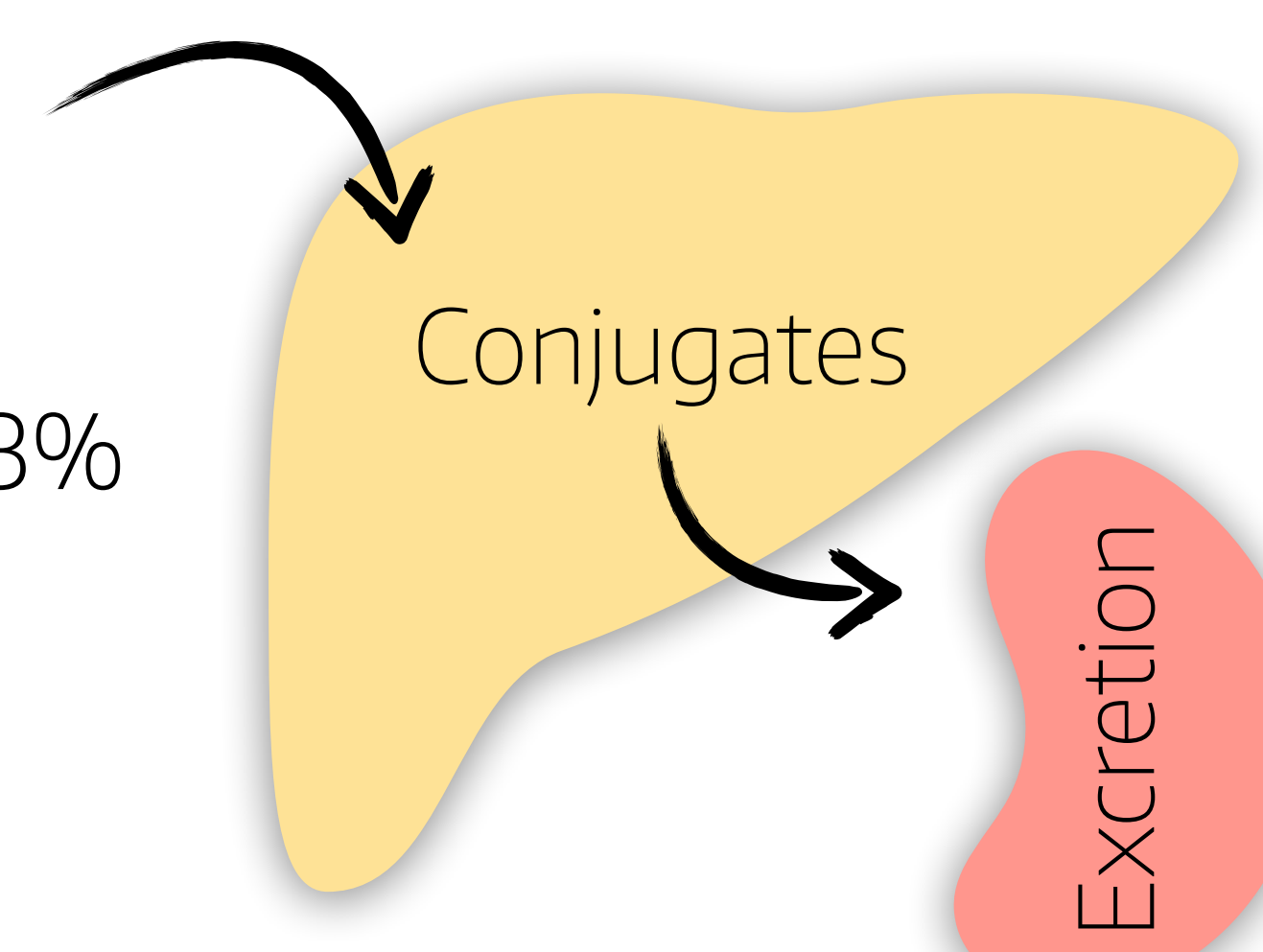
pKa **8.0**

Unionised at pH 7.4: 23%

V_D 2-3L/kg

Cl 15-30ml/kg/min

Terminal $t_{1/2}$: 180mins



- ✓ Intra/Post-op analgesia
- ✓ Long acting
- ✓ PCAs

Synthetic Piperidine Derivatives

Phenanthrene