

**Al-Mustaqbal University College/ Department  
of Pharmacy**

**Pharmacology lab 5/ 4<sup>th</sup> stage**

# **Evaluation of Analgesia**

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# Opioid Analgesic

**opioid – opium**

**A dark brown  
,resinous material  
obtained from poppy**

**The plant name is**

**Papaver somniferum  
capsules**



# Morphine

First isolated from opium by

German scientist  
**Friedrich Serturner**  
in about 1804.

## Friedrich Serturner

- German Scientists
- Discovered Morphine
- Wife Overdosed from use of morphine



# Opioid Analgesic

## Uses

- Severe acute shooting visceral pain
- MI
- Terminal stages in malignancy
- Severe crush injuries
- Postoperative pain

# Morphine

## Mechanism of action

❖ Morphine acts on **mu ( $\mu$ ) receptors**

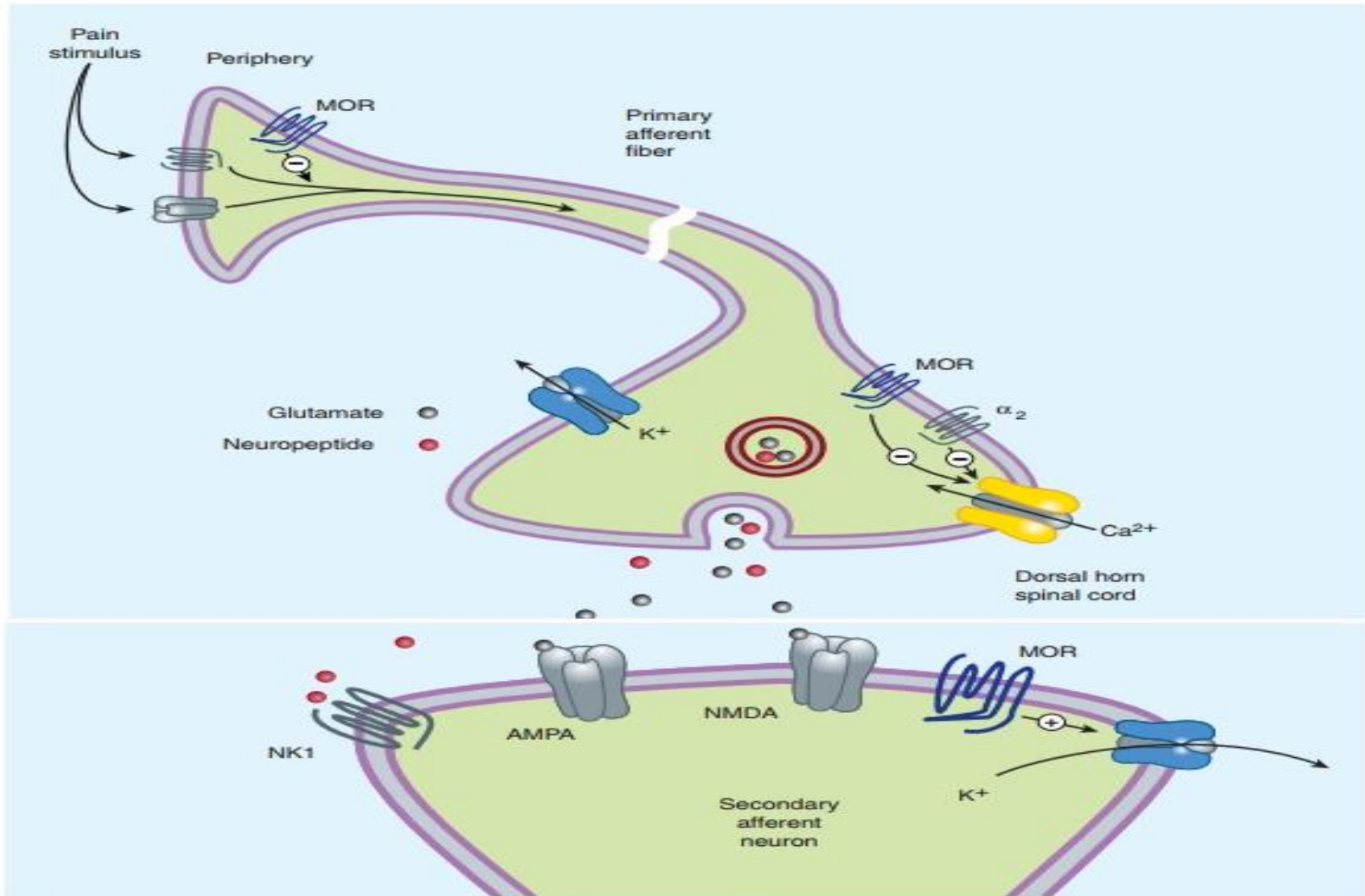
(a kind of opioid receptors) present in CNS and other tissues.

❖ **Mu receptors** are found mainly in brainstem and medial thalamus.

Related to analgesia, euphoria

respiratory depression, release of prolactin and anorexia.

# Morphine Mechanism



# Morphine Pharmacokinetics

**It can be given through oral, I.V,I.M,SC**

**. short half-life of around 2.5-3 hours and morphine-6-glucuronide**

**90 % is excreted through urine and 7-10 % in the form of biliary excretion.**

- Rapidly enters all body tissues.
- It enters the brain rapidly, can cross placental barrier and is also secreted in milk.

# Morphine derivatives

## What is heroin?

- Synthetic derivative of morphine
- (diacetyl morphine)
- Similar properties
- Treatment of overdose or withdrawal – same as morphine

What is heroin?



**codeine,  
dihydrocodeine,  
ethyl morphine,  
and  
dihydromorphine**



# Morphine/adverse effects

- **Adverse effects**
- **Respiratory depression** occurs even in small doses.
- **Allergic skin rashes**, contact dermatitis, pruritus may occur due to release of histamine.
- **Anaphylactic reaction**
- It may cause nausea, vomiting, mental clouding, dysphoria, headache and fatigue. It also causes constipation, hypotension and urinary retention.

# Morphine

- **Adverse effects**
- **Tolerance and drug dependence** are major drawback of morphine therapy. **Physical and psychological dependence** may occur.
- **Withdrawal symptoms** include fever, increase in heart rate and BP, intestinal cramps, insomnia, weakness and back and leg pain for several weeks.

