南方科技大学
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

生物医学工程系
Department of Biomedical Engineering

Crossing BBB

Presented By

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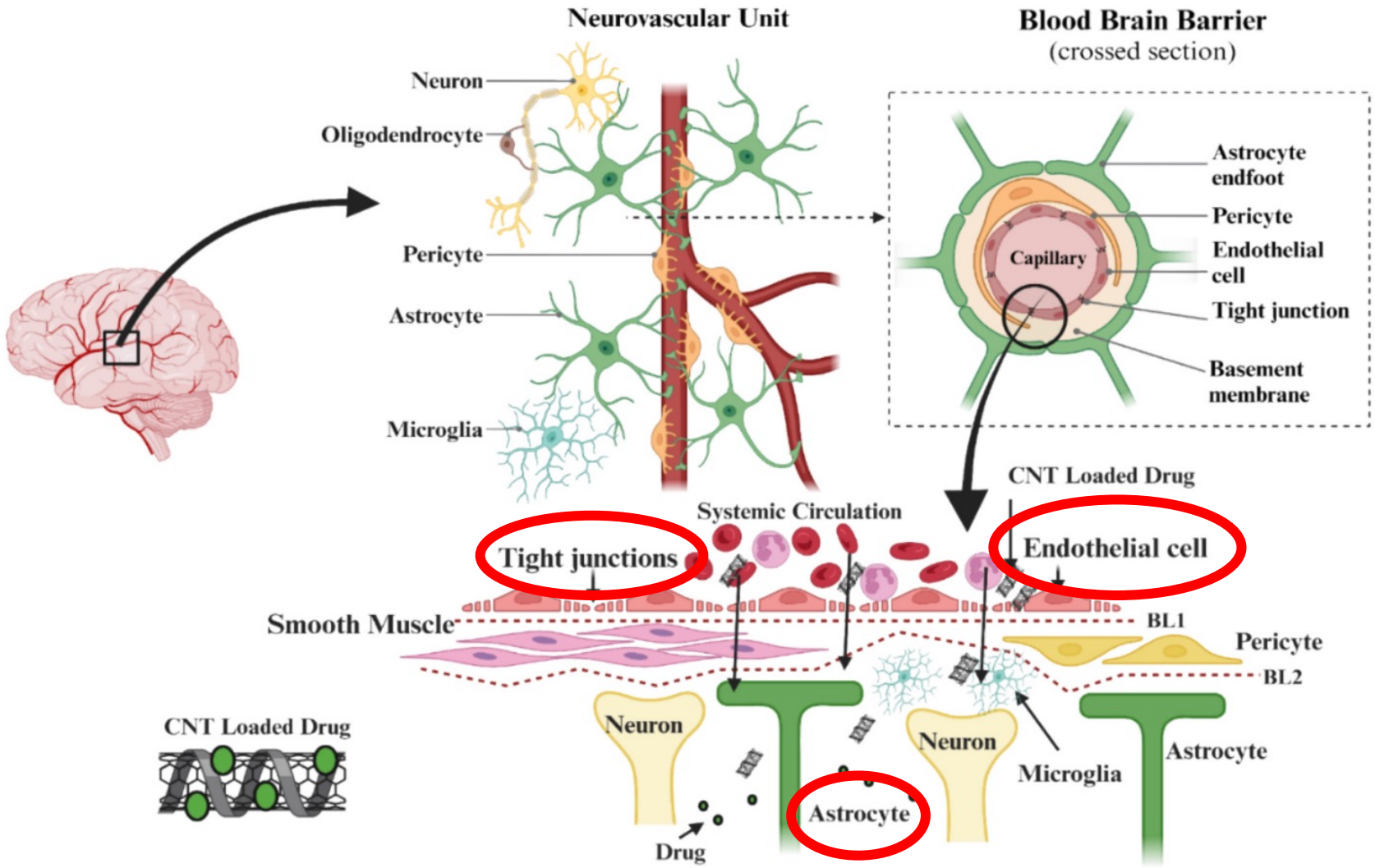
Challenge: BBB



(Das et al., 2025)

Mechanism

in vitro co-culture BBB model

porcine brain endothelial cells (PBEC) and rat astrocytes

Clusters: Transcytosis

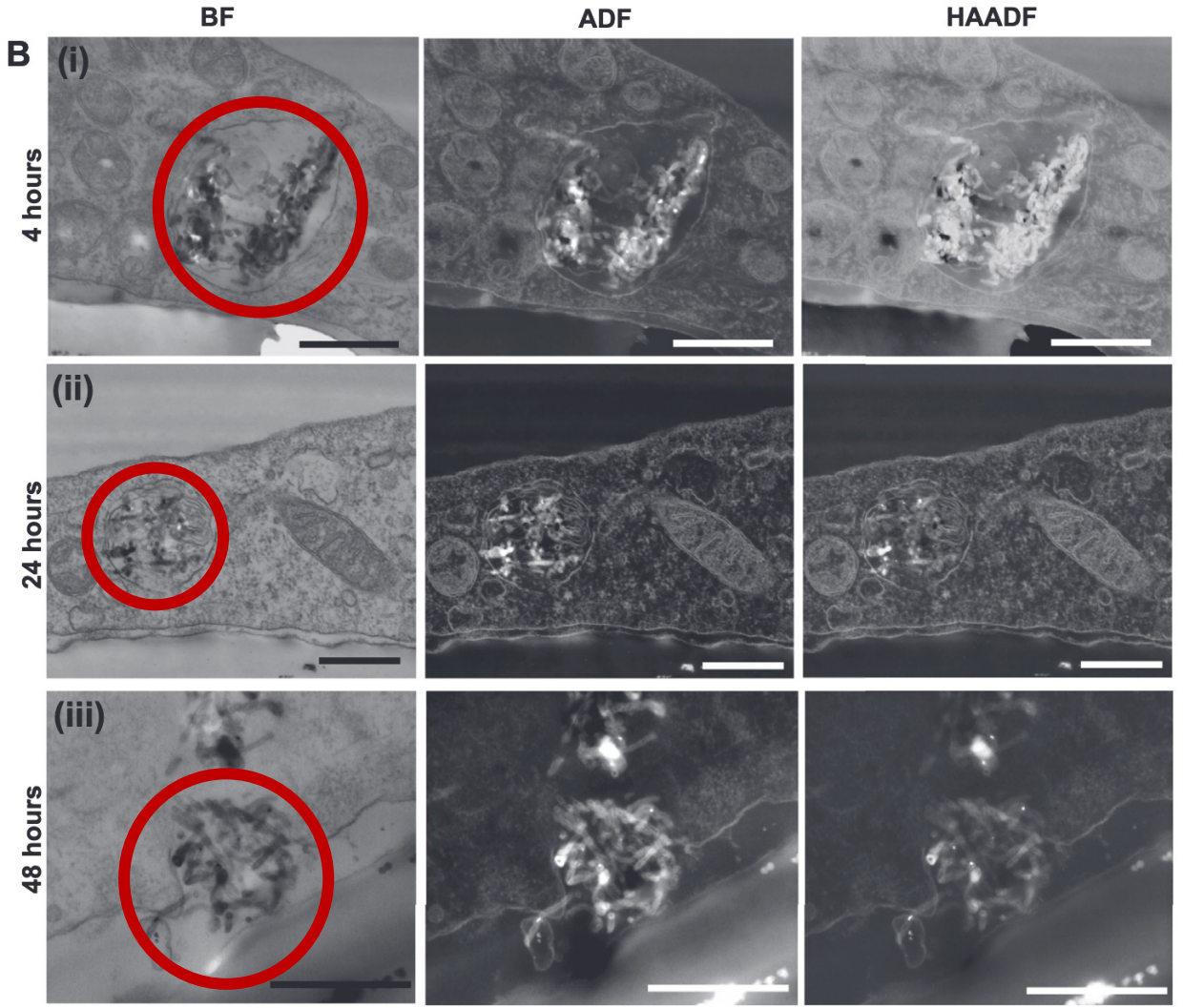
MWNTs-$NH3^+$ appears within

- **endocytic vesicles**
- **multi-vesicular bodies**

Active energy-dependent

4 ^{0}C

- **accumulation** outside PBEC
- no evidence of vesicular uptake



(Kafa et al., 2015)

Mechanism

in vitro co-culture BBB model

porcine brain endothelial cells (PBEC) and rat astrocytes

"Individual" : Pierce

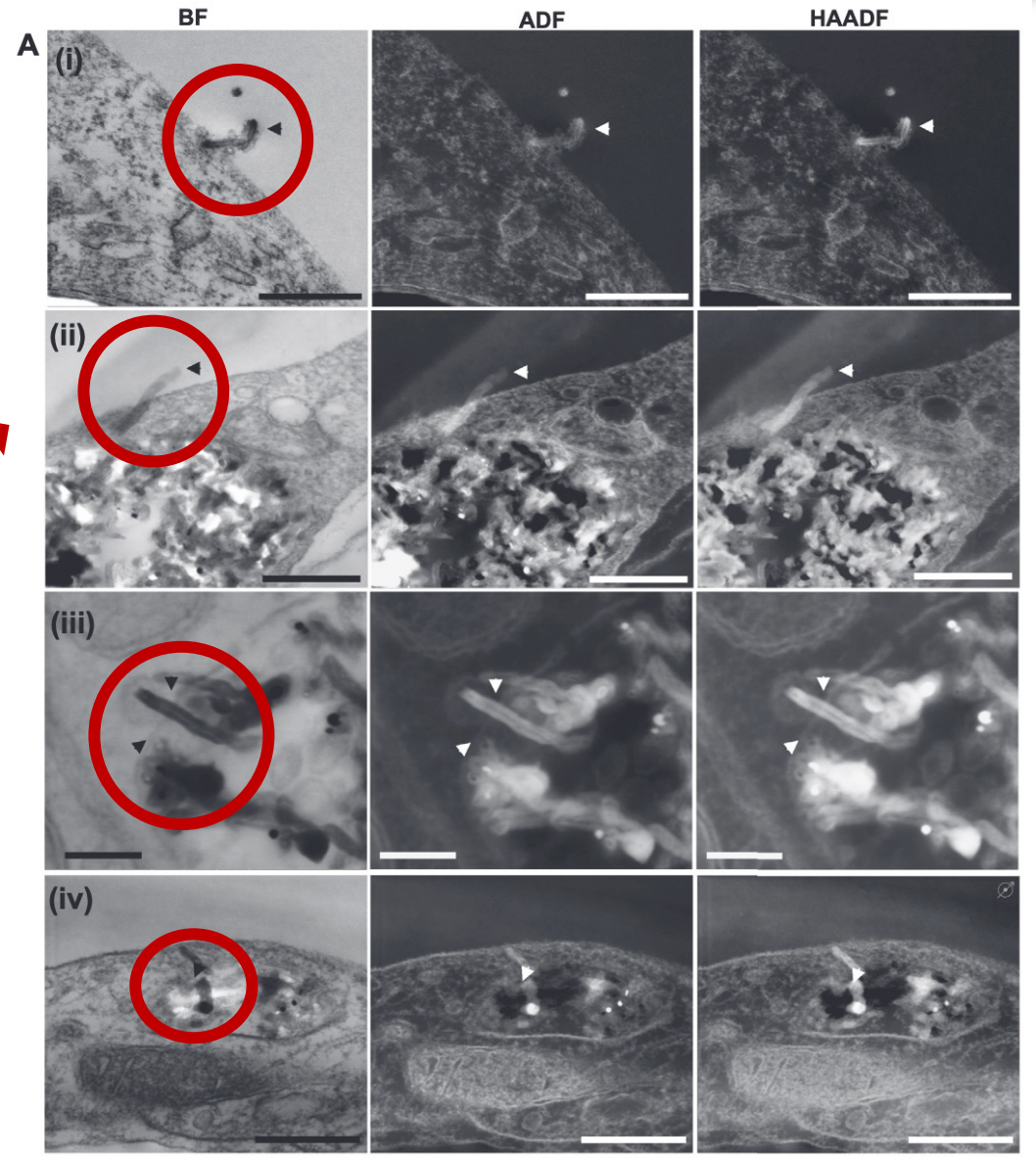
permeate through:

- the **plasma membrane** level
- within the cell -- **vesicles**

Passive energy-independent

4 ^{0}C

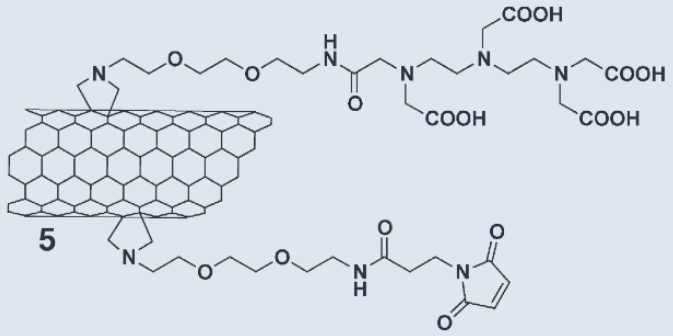
- small fraction of MWNTs-$NH3^+$ cell entry

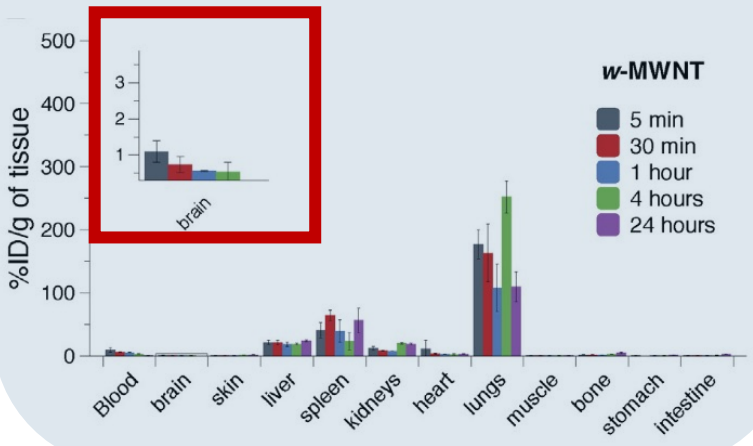


(Kafa et al., 2015)

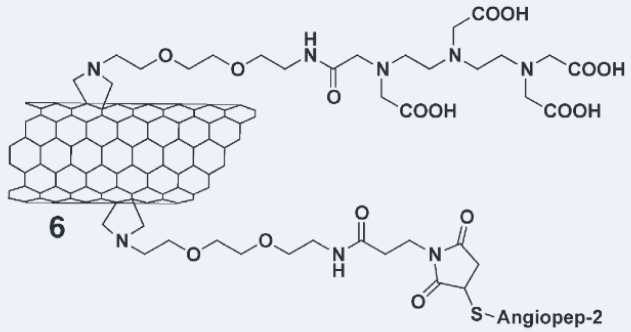
Developing

W-MWNT
Wide MWNT

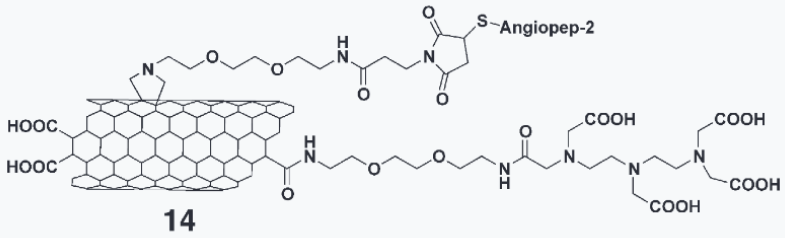


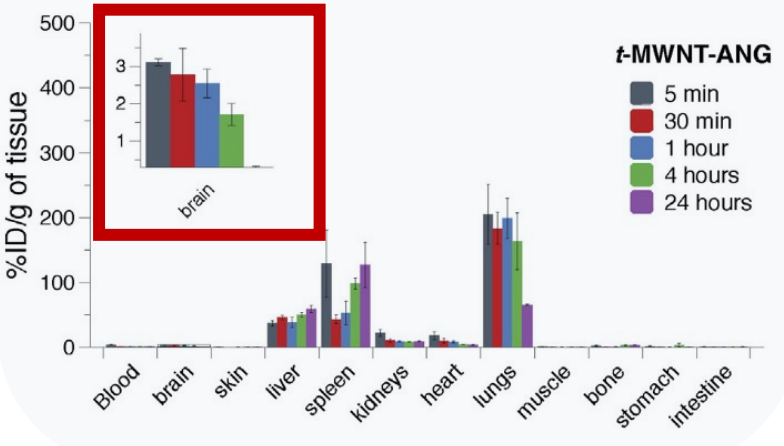


w-MWNT-ANG
Angiopep-2-targeted



t-MWNT-ANG
Thin MWNTs





(Kafa et al., 2016)

Reference List

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