

## EXOSOMES – A NEW ERA IN RESURGENCE

### WHAT ARE EXOSOMES?

Exosomes are Potential Class of New Theapeutics

Lipid-bilayer nanoparticles produced by most cells for inter-cellular communication

Targeted to specific receptors

May be bioengineered

May be lyophilized

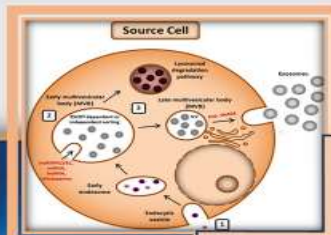
Contain small fragment nucleic acids and proteins for cellular signaling

Contents readily enter cytoplasm

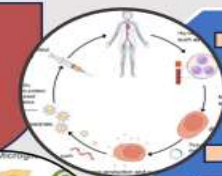
### SOURCES OF EXOSOMES



### EXOSOMES FORMATION



### FUNCTIONS OF EXOSOMES



REGENERATION  
INTER CELLULAR COMMUNICATION  
BIOMARKER  
BIOCOMPATIBLE

ANGIOGENESIS  
NEUROGENESIS  
ODONTOGENESIS  
IMMUNE REGULATION

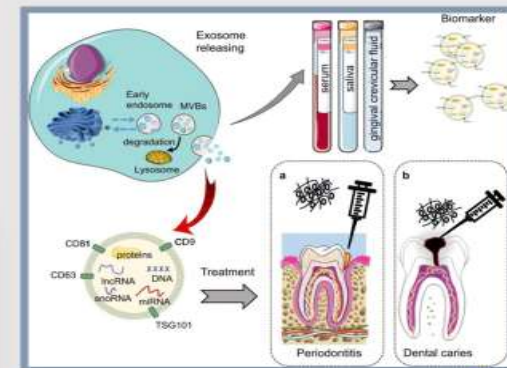
### EXOSOMES IN REGENERATIVE ENDODONTICS

Direct pulp capping, partial pulpotomy, and total pulp loss



Combination with other bioactive molecules and dental biomaterials

Regeneration



### REGENERATION OF ROOT BY USING EXOSOMES

