

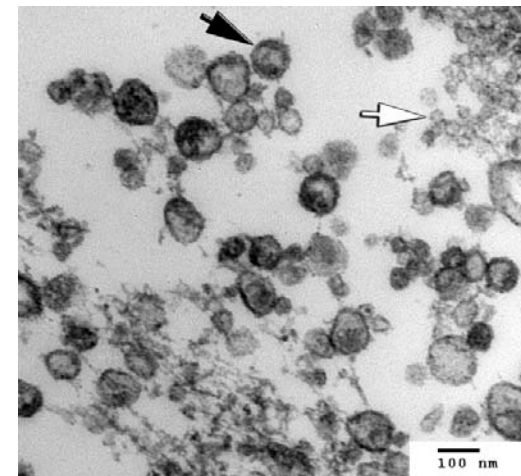
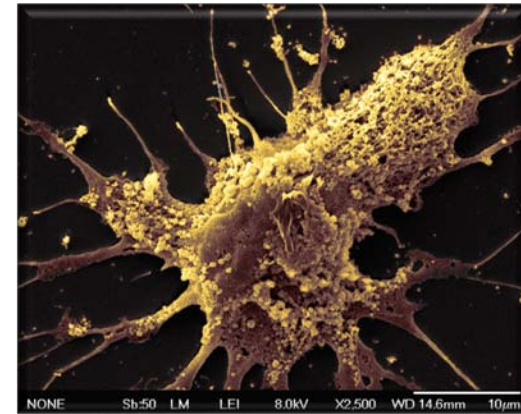
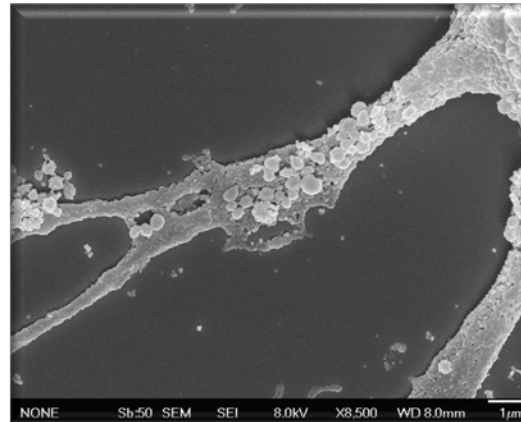
Evolution of cancer via natural selection of heritable traits is too limiting

- Selection of cells that can survive a variety of stresses including anticancer treatments plays a definite role in the evolution of cancer, however,
- this is inefficient and likely not sufficient to explain the rapid evolution of cancer cells, especially in response to treatment

A framework for adaptive change during the lifetime of a cell/tumor

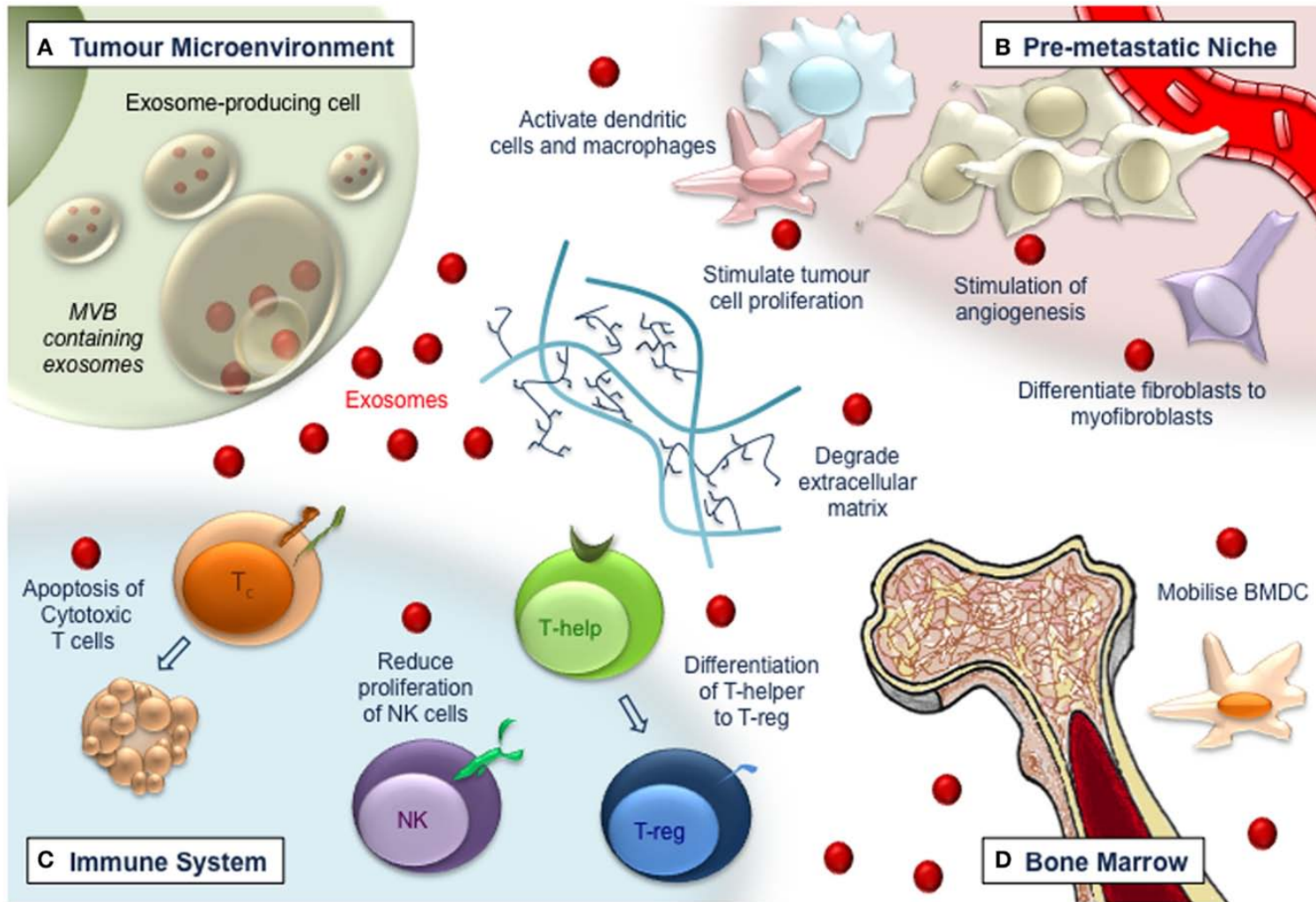
Exosomes contain:

- mRNA
- miRNA
- Non-coding RNA
- Amplified oncogenes
- Retrotransposons
- Angiogenic proteins
- Matrix metalloproteinases (MMPs)
- Tumor specific proteins (EGFRvIII)
- Tau protein
- Alpha-synuclein protein
- Prion protein
- Etc...



Cancer Progress by Defined Health
New York, NY | March 17-18, 2015

An organismal level model for cancer evolution



Red dots represents exosomes and their roles in cancer. From Tickner JA *et al* Functions and therapeutic roles of exosomes in cancer. *Front. Oncol.*, 27 May 2014
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