Multiscale compartment model of VEGF distribution in the body: Application to cancer therapy

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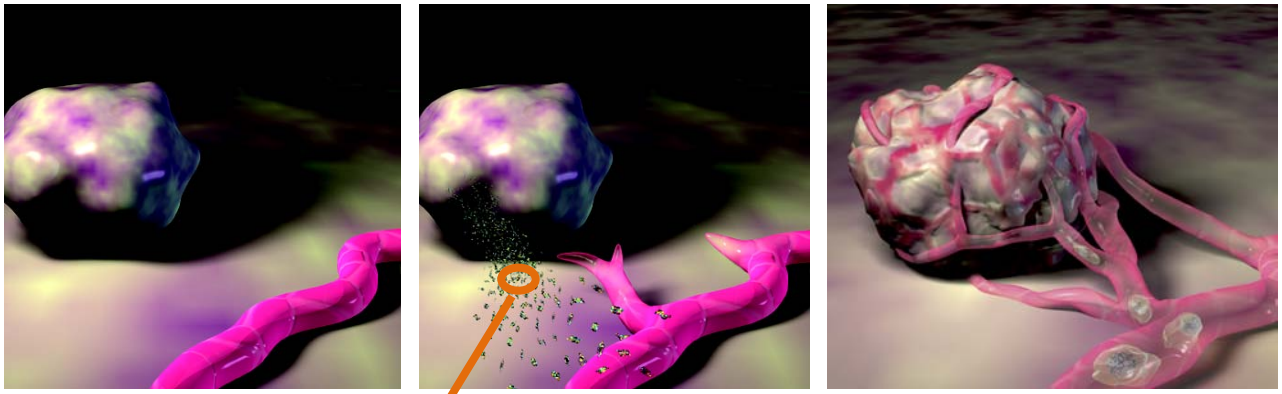
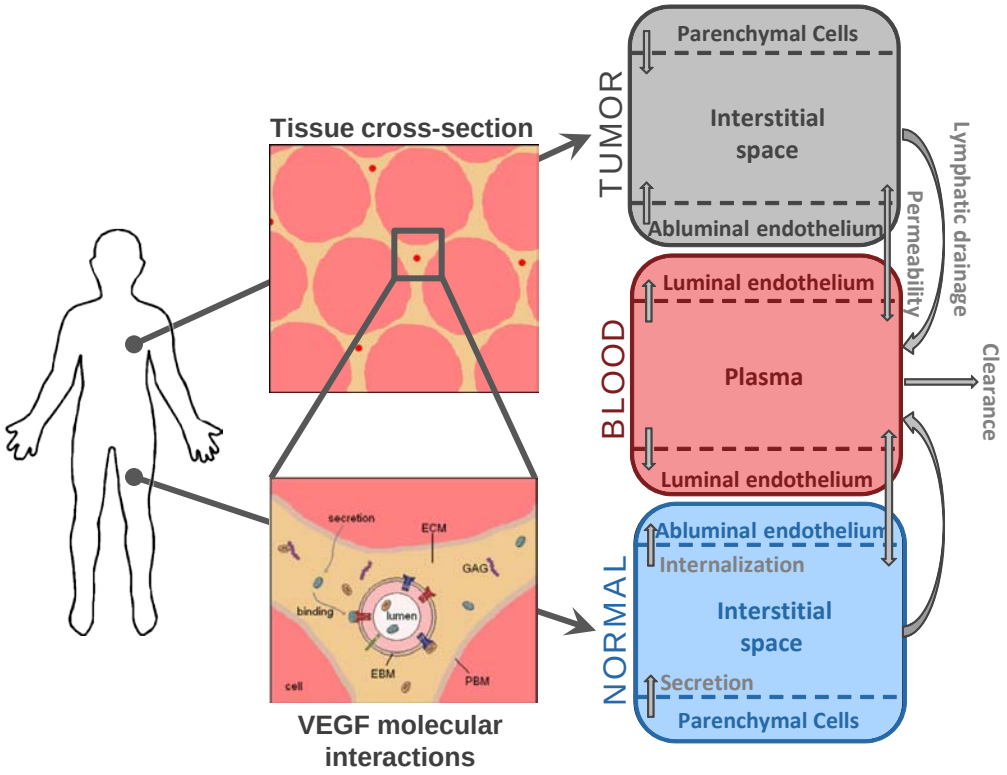
Angiogenesis: growth of new capillaries from pre-existing blood vessels

- Regulated by **V**ascular **E**ndothelial **G**rowth **F**actor (VEGF)
- Required for cancer growth and development
- Many cancer therapies target VEGF-mediated signaling



What are the effects of VEGF-neutralizing agents?

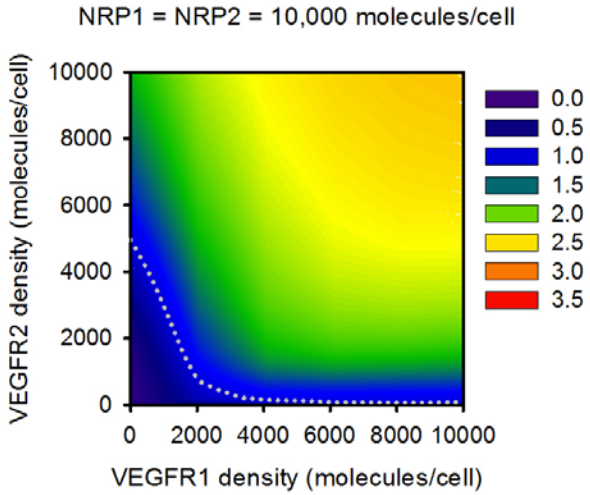
Under what conditions do anti-VEGF agents have a therapeutic effect?



Apply the multiscale model of VEGF transport and kinetics to:

- Simulate administration of **anti-VEGF treatment**
- Perform a **sensitivity study** to determine range of parameter values that elicit a therapeutic response
  - Systemic parameters
  - Drug properties
  - Properties of tumor microenvironment

Example: effect of tumor cell receptor expression



Personalized medicine

Stratification of optimal patient population