

- Methods for studying cells
 - Our understanding is limited by methodology
 - Modern technology helps us understand
 - What takes place inside cells
 - How cells interact with other cells
 - Which genes are turned on / off
 - What mRNA or proteins are present
 - Which proteins are doing what and how much
 - What are the regulatory connections and pathways
 - Traditionally akin to reverse engineering an aircraft carrier, shrunk to the size of an ant, with a sledge hammer; but things are getting better

• **Isolating cells from a specific intact tissue**

– Disrupting extracellular matrix; cell junctions

- Trypsin; collagenase

– digest protein

- EDTA

– chelate Ca⁺² (adhesion)

– Tag desired cells with antibody

– Separate using fluorescence activated cell sorter (flow cytometry)

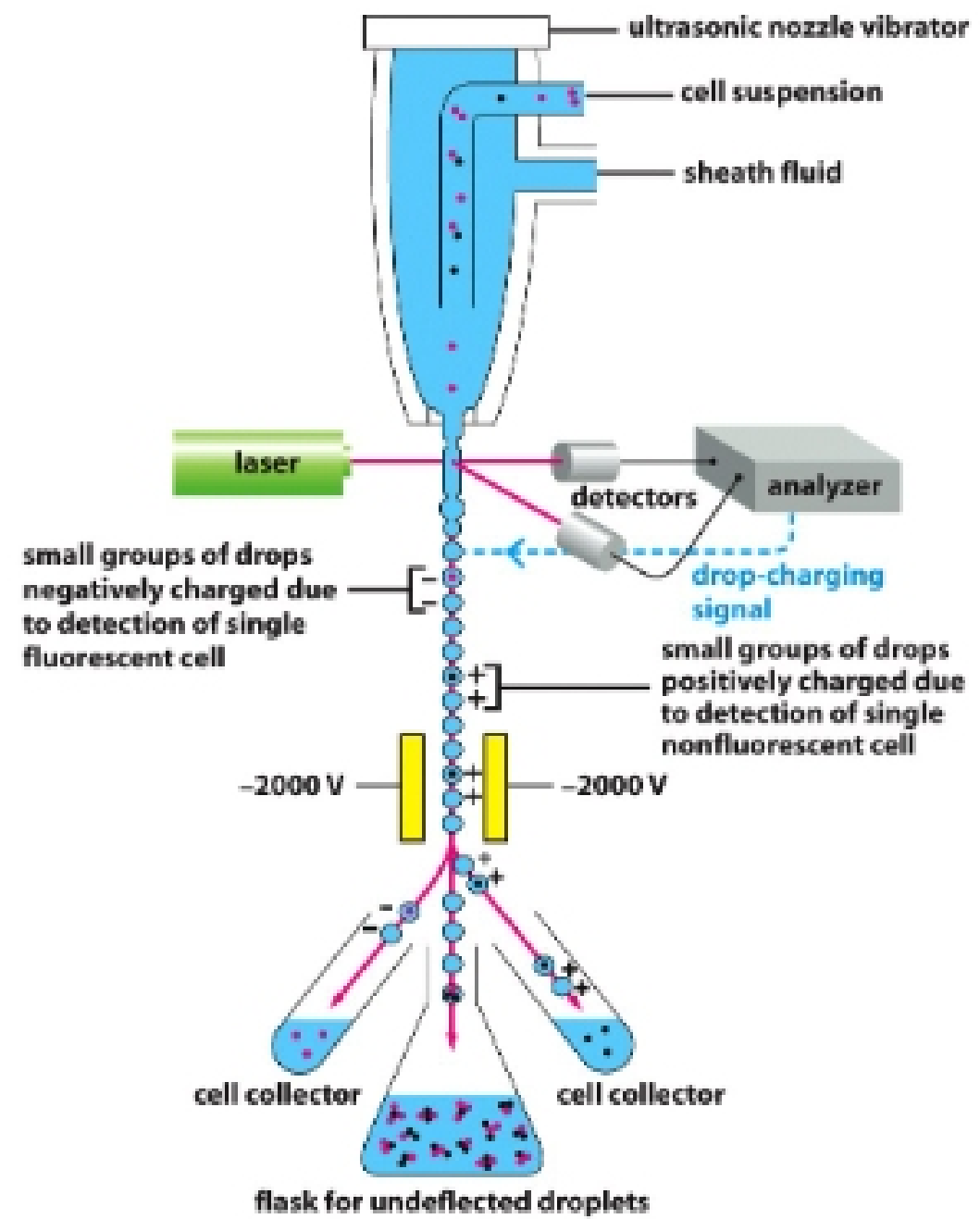
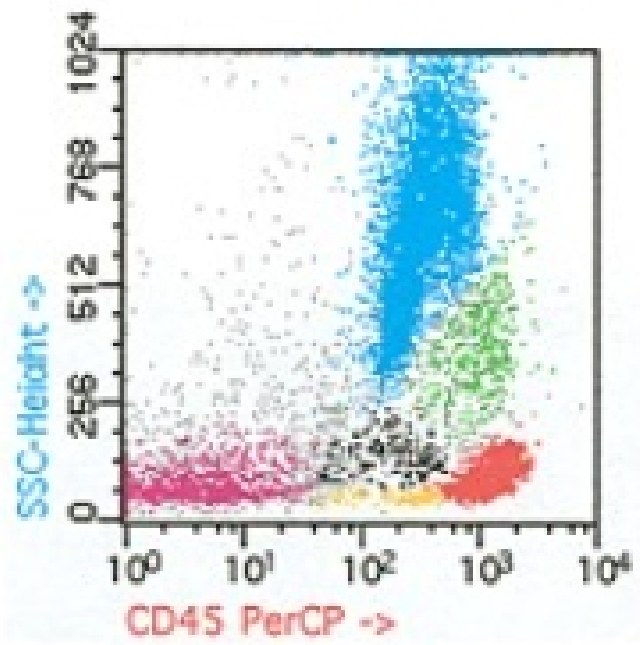


Figure 8-2 Molecular Biology of the Cell 5/e (© Garland Science 2008)

- Laser capture microdissection

- Cut thin section of tissue
- Coat with polymer
- Stain
- Use infrared laser to cut out desired tissue section e.g. tumor
- Remove section for further analysis

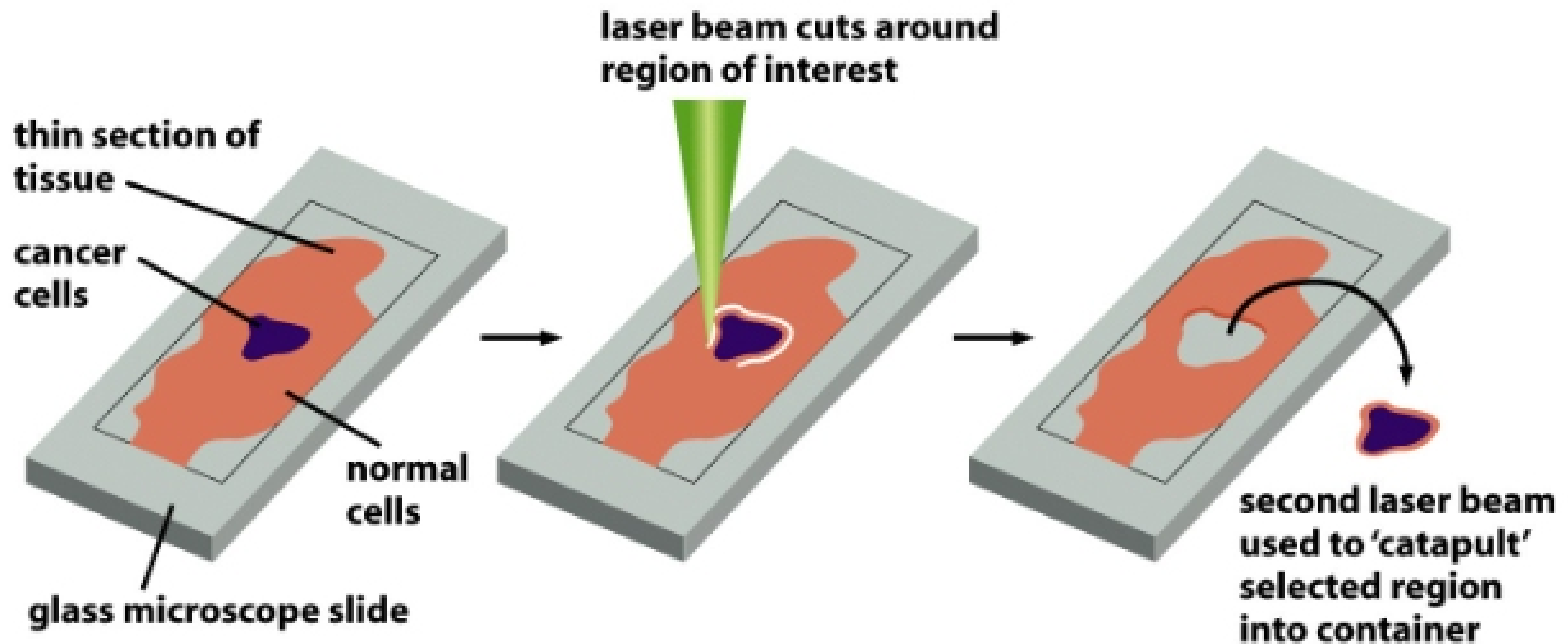


Figure 8-3 Molecular Biology of the Cell 5/e (© Garland Science 2008)