Tumor Metastasis

Key Steps in Tumor Metastasis
1. Separation of tumor cells from the primary tumor mass.
2. Invasion of tumor cells through surrounding tissue.
   - Proteolytic destruction of the basement membrane and extracellular matrix (ECM).
   - Migration towards blood vessels.
3. Extravasation
   - Entry of tumor cells into a blood vessel and their activation by platelet-activating factor.
   - Increased expression of P-selectin and the formation of tumor cell-platelet aggregates.
4. Circulation
   - Tumor cells reach distant sites via circulation in the blood vessel.
5. Extravasation
   - Attachment of activated tumor cells to the vessel wall.
   - Blood vessel.
6. Invasion of tumor cells through surrounding tissue.
7. Tissue Invasion
   - MMPs degrade the basement membrane and extracellular matrix. Adhesion molecules stimulate their proliferation and migration.
8. Tissue Invasion
   - Proteolytic destruction of the basement membrane and extracellular matrix (ECM).

Techniques & Assays

- **Boyden Chamber**
  - The classic Boyden chamber system places cells at a permeable filter, which maintains a fluid interface with a chemotactic gradient. The filter can be coated with a thin layer of chemotactic substance, and a flow measuring system where the cells have traversed the matrix is used to assess migration.

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