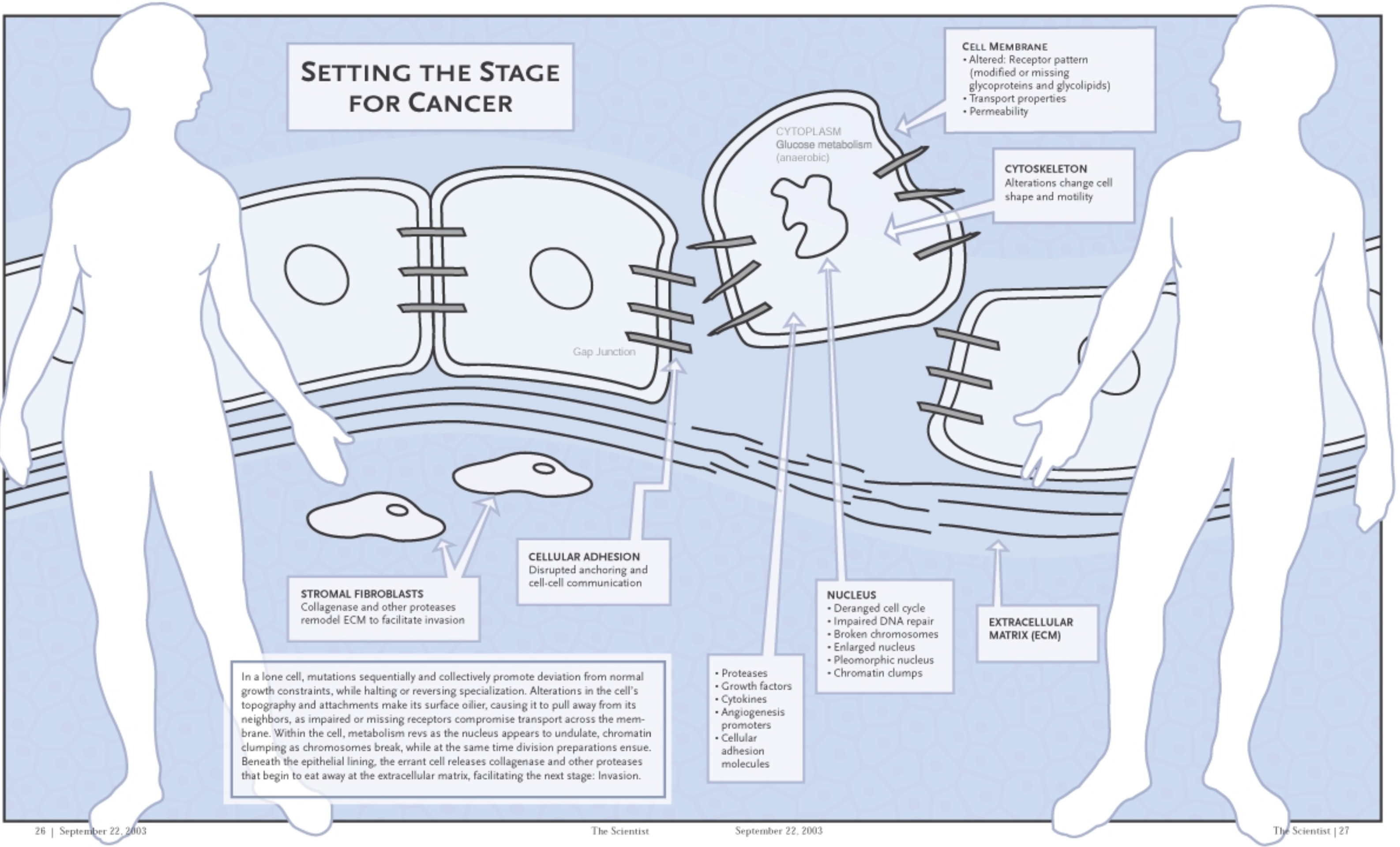


SETTING THE STAGE FOR CANCER



CELL MEMBRANE

- Altered: Receptor pattern (modified or missing glycoproteins and glycolipids)
- Transport properties
- Permeability

CYTOSKELETON

Alterations change cell shape and motility

CYTOPLASM

Glucose metabolism (anaerobic)

Gap Junction

CELLULAR ADHESION

Disrupted anchoring and cell-cell communication

STROMAL FIBROBLASTS

Collagenase and other proteases remodel ECM to facilitate invasion

NUCLEUS

- Deranged cell cycle
- Impaired DNA repair
- Broken chromosomes
- Enlarged nucleus
- Pleomorphic nucleus
- Chromatin clumps

EXTRACELLULAR MATRIX (ECM)

- Proteases
- Growth factors
- Cytokines
- Angiogenesis promoters
- Cellular adhesion molecules

In a lone cell, mutations sequentially and collectively promote deviation from normal growth constraints, while halting or reversing specialization. Alterations in the cell's topography and attachments make its surface oilier, causing it to pull away from its neighbors, as impaired or missing receptors compromise transport across the membrane. Within the cell, metabolism revs as the nucleus appears to undulate, chromatin clumping as chromosomes break, while at the same time division preparations ensue. Beneath the epithelial lining, the errant cell releases collagenase and other proteases that begin to eat away at the extracellular matrix, facilitating the next stage: Invasion.