Topic 9-1 Anticancer drugs- Introduction

Ch 18 Patrick

Part V- Malignant disease -Corey

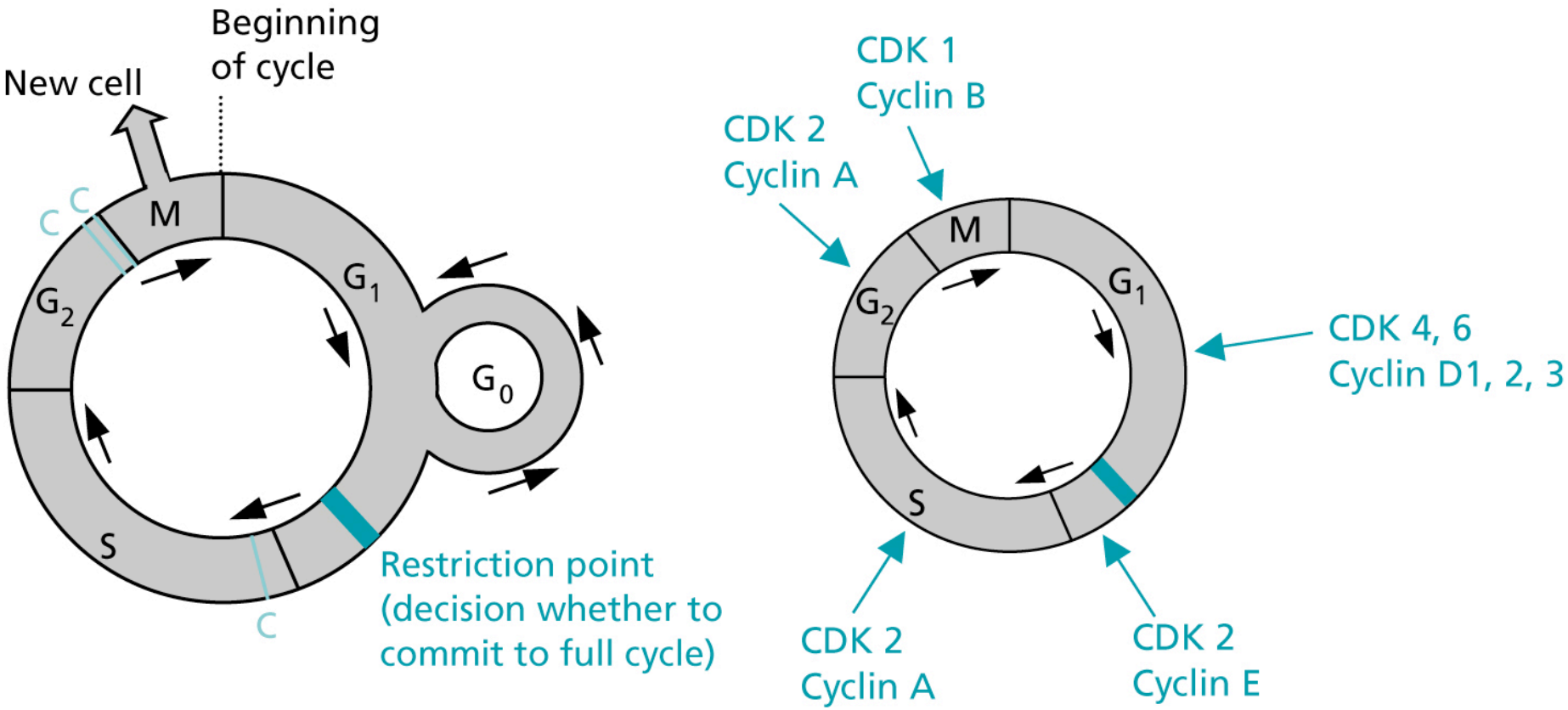
Cancer

Uncontrolled cell growth and dysregulation caused by inherited, spontaneous or chemical or viral induced mutations. Cancer effectors:

- Abnormal signaling pathways
- Insensitivity to growth inhibitors
- Abnormalities in cell cycle regulation
- Avoiding apoptosis
- Limitless cell division
- Angiogenesis (blood vessels)
- Metastasis, invasion into other tissues

Cancer

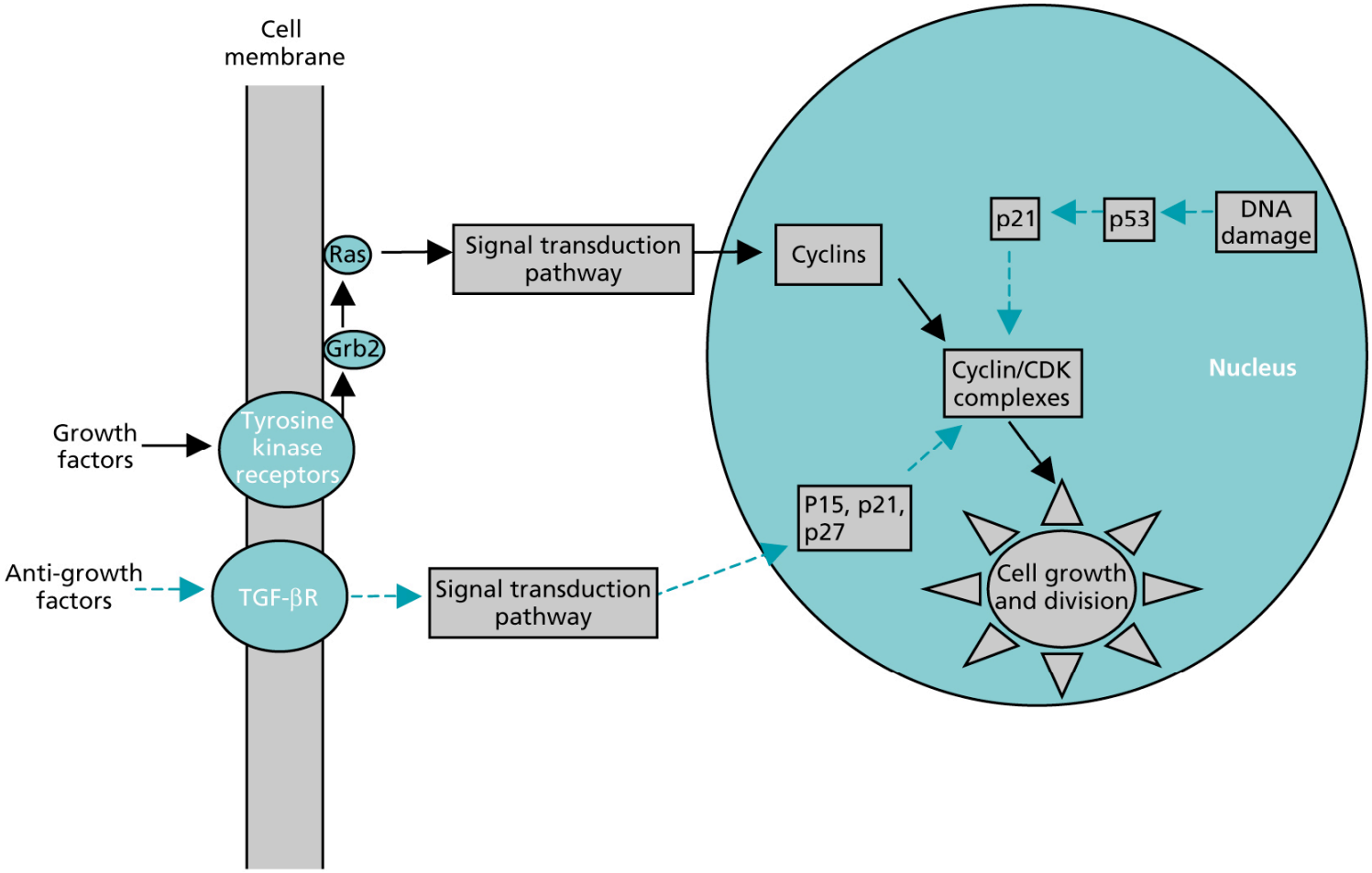
Cell cycle control points:



Cancer

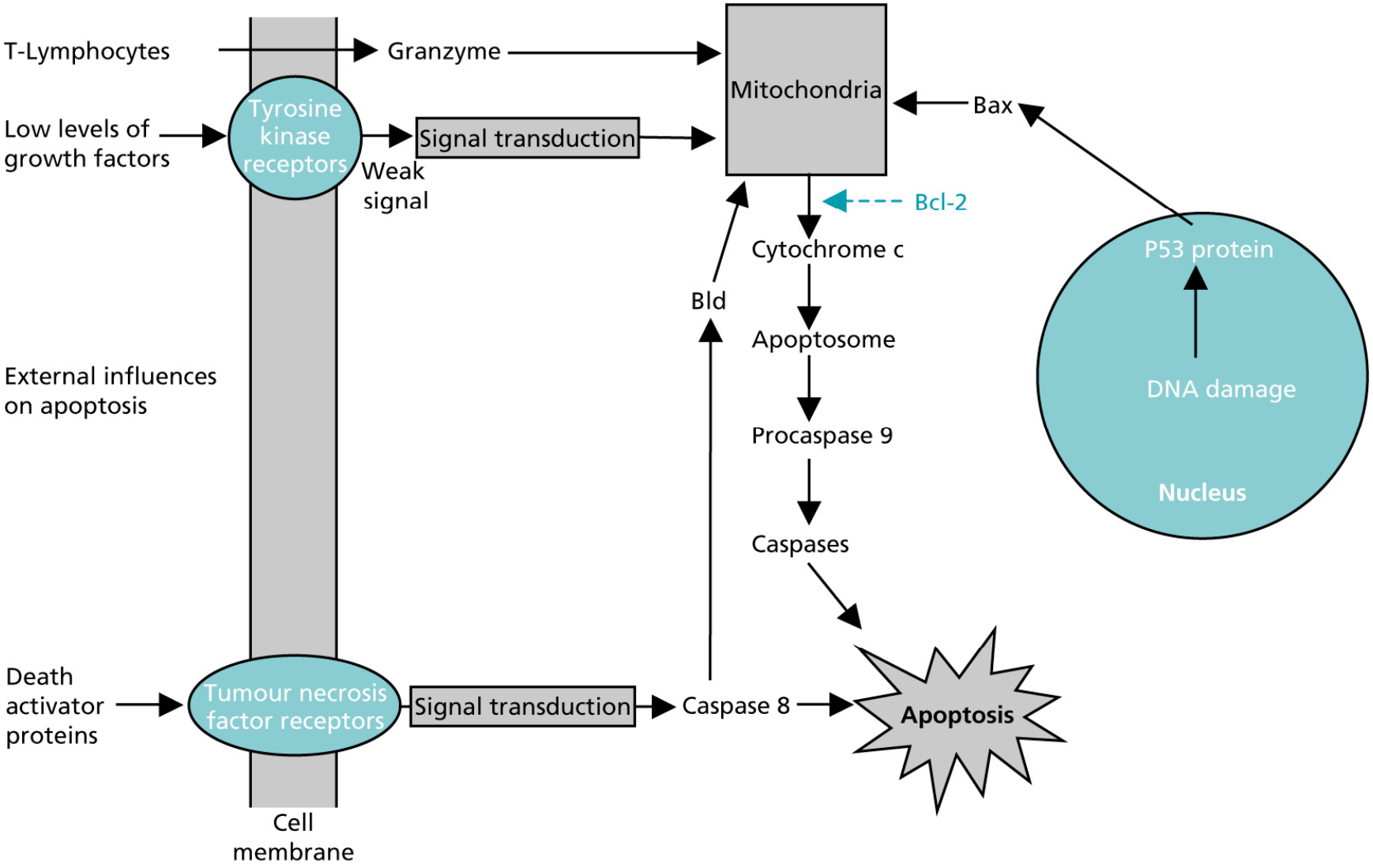
Cell cycle control points:

Inhibitors like P53 and P21 restrain cell division caused by cyclin dependent kinases



Cancer

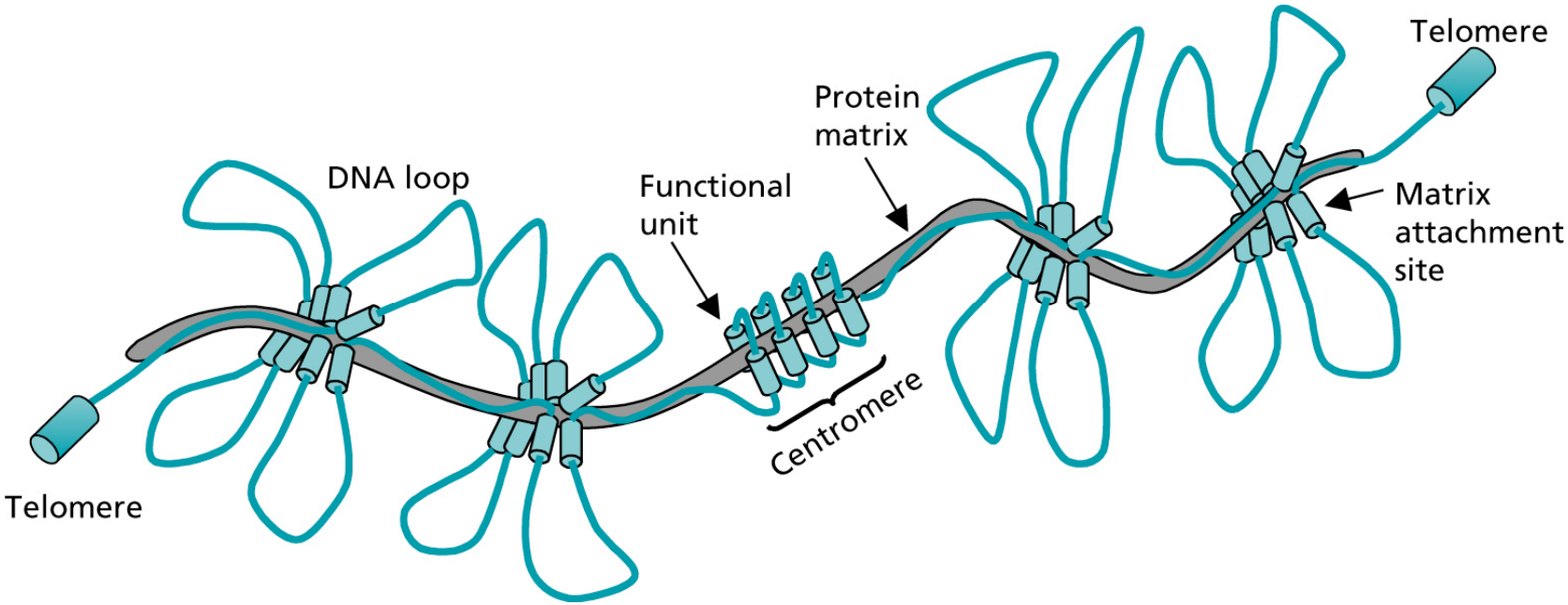
Apoptosis:extrinsic and intrinsic



Cancer

Apoptosis: telomeres and immortality!

- Telomeres stabilize DNA-1,000s odf 6BP repeats
- 50-100 bases lost from telomeres each cell division
- Apoptosis normally occurs when it gets too short
- BUT ~85% of cancers have reactivated embryonic telomerase to immortalize them
- Allows unchecked cell division



Cancer

Angiogenesis-have to have the blood!