

DOOGIE BRASH - SKIN CANCER + SUNLIGHT

What does sunlight have to do w/ skin cancer

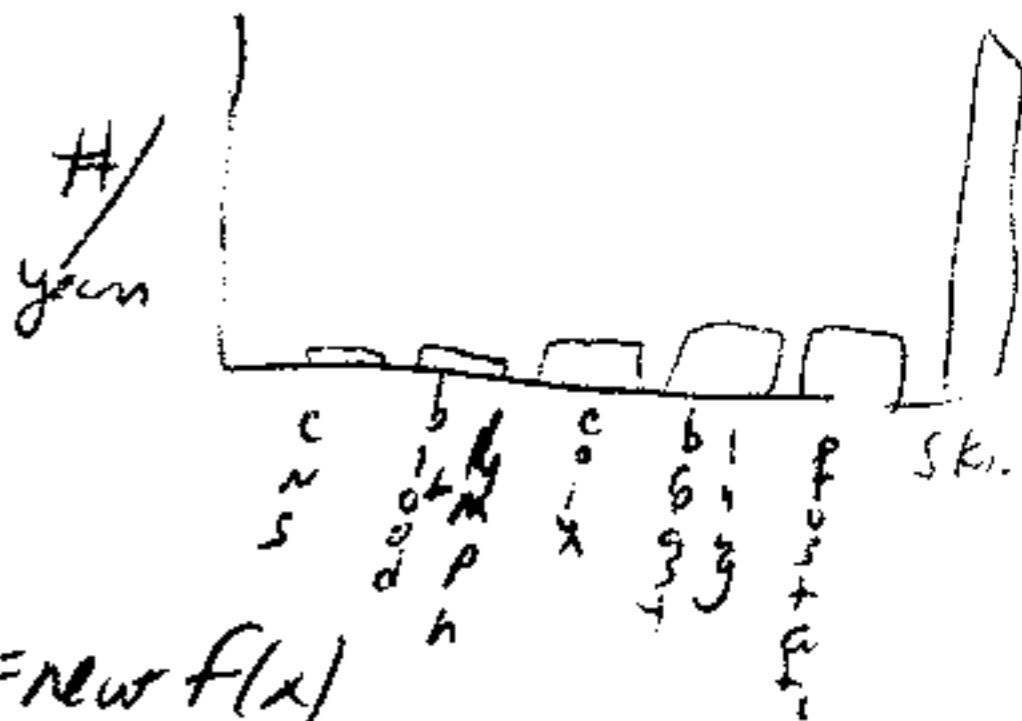
① skin cancer only in exposed regions

Non-melanoma

light → carcinomas

wavelength?
cell of origin?
gene?
photoproduct?
mutation?
causality?

oncogene = new $f(x)$
tumor suppressor = loss of $f(x)$



Sunlight Induced Mutations in Human Skin Tumors

p3 = Squamous cell carcinoma (79%)

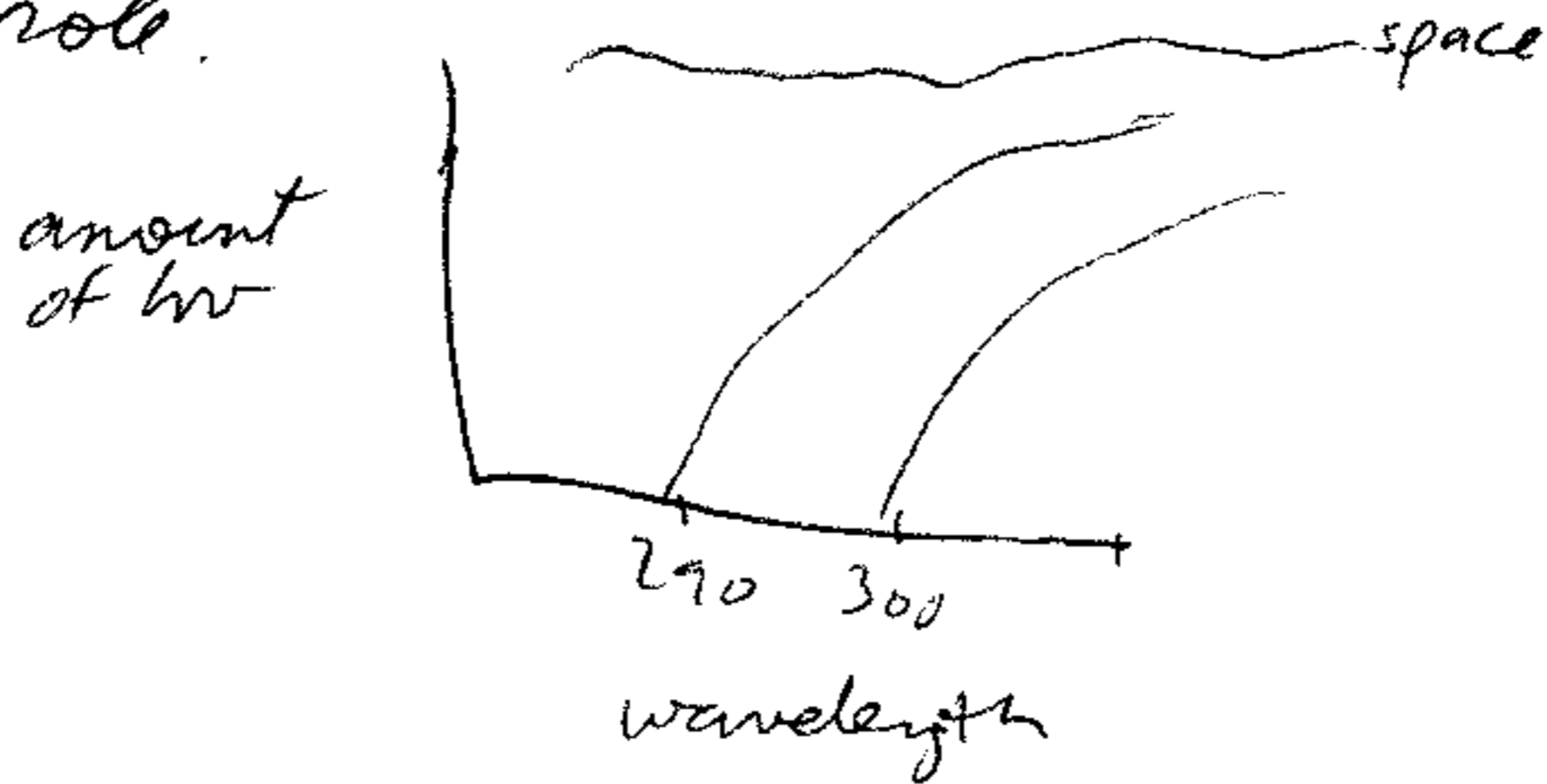
p16 = in melanoma

p53 = basal cell carcinoma (>90%)

How know if carcinogen caused tumor?

- need cancer for which carcinogen known
- need distinctive mutations
- need genes for which most mutations affect phenotype
- are mutations early in devlop. of tumor

The fact that most mutations change amino-acids suggests that selection has played a major role.



what permits cells to divide?

sunburn cells are apoptotic.

Cellular Proofreading

Cancer

- removes DNA-damaged cells
- removes aberrantly-cycling cells (Rb⁻)
- enriches for apoptosis-dependent cells after UV
- determines age of tumor appearance

Birth Defects

- removes germ cells during normal development
- prevents birth defects after B-P, x-ray



70
viable



~~MEF p53+/+~~

MEF p53+/+ MEF p53-/-

MEF p53+/-

mm