Department of Biological Sciences
Stanford University

Program Schedule
(revised; tentative)

Please note: allsessions held in **Nautilus Meeting Room** *in the Sea Galaxy complex*

Sunday, October 31st

Meeting Session — 2:00 p.m. to 4:00 p.m.

Welcome by Ron Kopito
Moderator: Kevin Sweder, Hanawalt Lab

	Speaker	Lab	Talk (titles may be tentative)
2:10	Philippa Webster	Macdonald	Localization of *oskar* mRNA
2:30	Joan Wilson	Macdonald	No heads are better than one: Using *oskar* to look for genes involved in body patterning and germ cell formation in *Drosophila*
2:50	Tim Stearns	Stearns	γ-tubulin and the centrosome
3:30 - 3:50	BREAK		
3:50	Ron Kopito	Kopito	Introduction
4:00	Kevin Gunderson	Kopito	Reconstitution of CFTR into bilayers
4:20	Israel Sekler	Kopito	Functional properties and pH regulation of the anion exchanger
4:40	SESSION ENDS		

Check-in & Free Time: — 4:40 p.m. to 6:00 p.m.

Dinner — 6:00 p.m. to 7:00 p.m.

Evening Meeting Session — 7:30 p.m. to 8:20 p.m.

Moderator: Kurt Gish, Yanofsky Lab

	Speaker	Lab	Talk
7:30 p.m.	William Gilly	Gilly, HMS	Introduction
7:40	Josh Rosenthal	Gilly	Cloning and expression of ion channels from an identified neuron: The squid giant axon
8:00	Bruce Baker	Baker	Sex, flies and developmental fates

Halloween Party — 8:30 p.m.

10/25/93

Asilomar Retreat, tentative schedule
Monday, November 1, 1993

Breakfast — 7:30 a.m. to 9:00 p.m.

Morning Meeting Session — 9:00 p.m. to 12:00 noon

Moderator: Joe Casey, Kopito lab

	Speaker	Lab	Talk
9:00 a.m.	Bob Schimke	Schimke	Introduction
9:10	Steve Sherwood	Schimke	Cell cycle control mechanisms and hepatosis in cultured mammalian cells
9:30	Rakesh Sharma	Schimke	Mechanisms of drug resistance in cultured human and rodent cells
9:50	Dora Ho	Sapolsky	Use of herpes virus vectors to confer neuronal resistance to neurological insults
10:10	Anjen Chen	McConnell	Cell division and nuclear migration in developing cortex
10:30	BREAK		
10:50	Dave Epel	Epel, HMS	Introduction
11:00	Barbara Toomey	Epel, HMS	Multidrug/multixenobiotic transporters in embryos
11:20	Mike Simon	Simon	no title

Lunch — 12:00 noon to 1:00 p.m.

Free Time — 1:00 p.m. to 3:00 p.m.

POSTER SESSION — 3:00 p.m. to 6:00 p.m.

Dinner — 6:00 p.m. to 7:00 p.m.

Evening Meeting Session — 7:30 p.m. to 10:10 p.m.

Moderator: Grant Kalinowski, Long Lab

	Speaker	Lab	Talk
7:30 p.m.	Martha Cyert	Cyert	Function of calcineurin phosphatase in yeast
8:10	Dave Perkins	Perkins	Experiments with Neurospora
8:30	Bob Simoni	Simoni	Introduction
8:40	Hide Kumagai	Simoni	Degradation of HMG-CoA reductase
9:00	BREAK		
9:20	Charlie Yanofsky	Yanofsky	Introduction
9:30	Kurt Gish	Yanofsky	Regulation of the tryptophanase operon of E. coli
9:50	Carl Yamashiro	Yanofsky	Developmental regulation of conidiation in Neurospora
10:10	SESSION ENDS		

10/25/93

Asilomar Retreat, tentative schedule
Tuesday, November 2, 1993

Breakfast — 7:30 a.m. to 9:00 p.m.

Morning Meeting Session — 8:40 p.m. to 12:00 noon

Moderator: Lenore Urbani, Schimke Lab

	Speaker	Lab	Talk
8:40 a.m.	Sharon Long	Long	Introduction
8:50	Morrey Atkinson	Long	What do the *nod* genes do?
9:10	Bob Fisher	Long	NodD and *nod* promoters
9:30	Pat Jones	Jones	Introduction
9:40	Keri Tate	Jones	Effect of amino acid polymorphisms on MHC protein function
10:00	Phil Hanawalt (or Ann Ganesan)	Hanawalt	Introduction
10:10	Kevin Sweder	Hanawalt	Two transcription factors involved in DNA repair in *Saccharomyces cereviseae*
10:30	BREAK		
10:50	Brian Donohue	Hanawalt	Transcription by mammalian RNA polymerase in vitro of a DNA template containing a cyclobutane pyrimidine dimer at a specific site
11:10	Ginny Walbot	Walbot	Introduction
11:20	Janie Hershberger	Walbot	Unusual gene regulation in the maize Mutator transposable element MuDR
11:40	Alan Lloyd	Walbot	Use of cre/lox site-specific recombination in *Arabidopsis*
12:00	SESSION ENDS		

Lunch — 12:00 noon to 1:00 p.m.

RETREAT ENDS — 1:00 p.m.

thanks for coming!!

10/25/93

Dept Retreat 1

Phillipa Webster

Oscar RNA → Oscar Protein
Localized

NOTE IF TX & TL COUPLED THEN COULD LOCALIZE RNA

Why localize RNA
① pt source for protein gradient
② give daughter cells specific transcript
TRANSIENT PARENTAL INFLUENCE

How
① diff stabilization

Oskar localization
-3' UTR needed

Joan Wilson

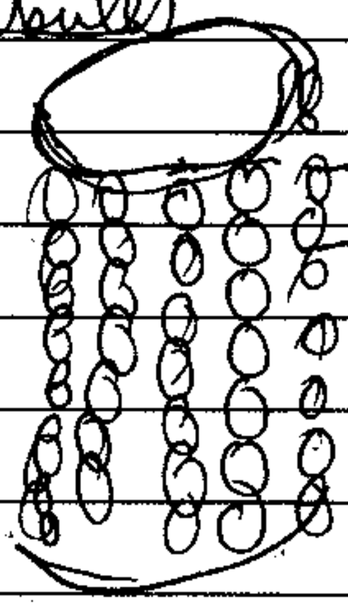
Oskar - produced by mom
- "functions" in embryo

6X oskar - mostly bicaudal
6X oskar - 1X vasa (heterozygote) = more wt

Tim Stearns

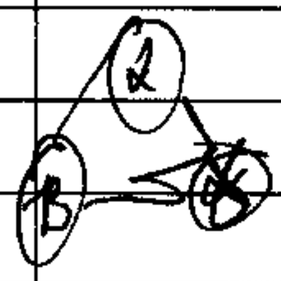
Microtubules

GTP binding



α
β tubulin heterodimer

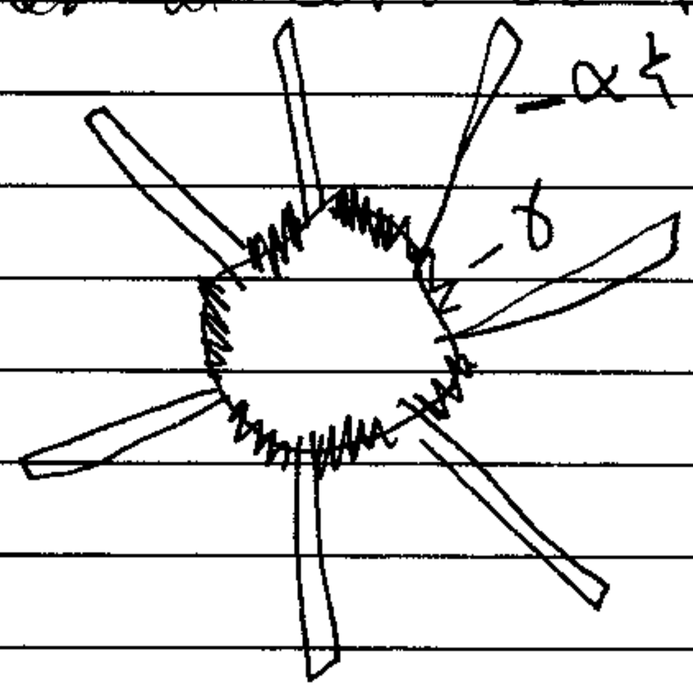
- γ - isolated as suppressor of β-mutant



- γ found in Aspergillus

Degenate PCR - cloned γ from many species

- Minor protein
- Located at centrosome



Yeast

Screen for mutants

Benomyl[S] Chroma loss

↓

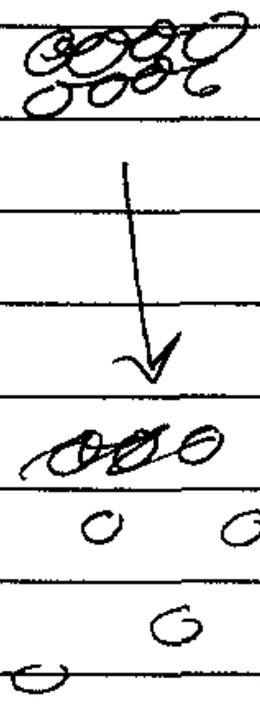
α, β tubulin

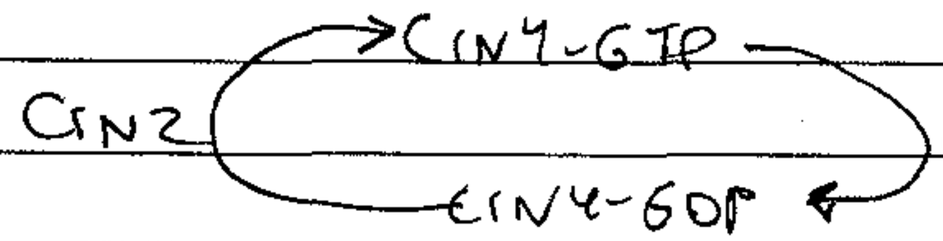
↓

CIN2 CIN2 CIN4 - not required

CIN1 } SEQUENCED
CIN2 }

CIN4 - GTP binding (motifs)

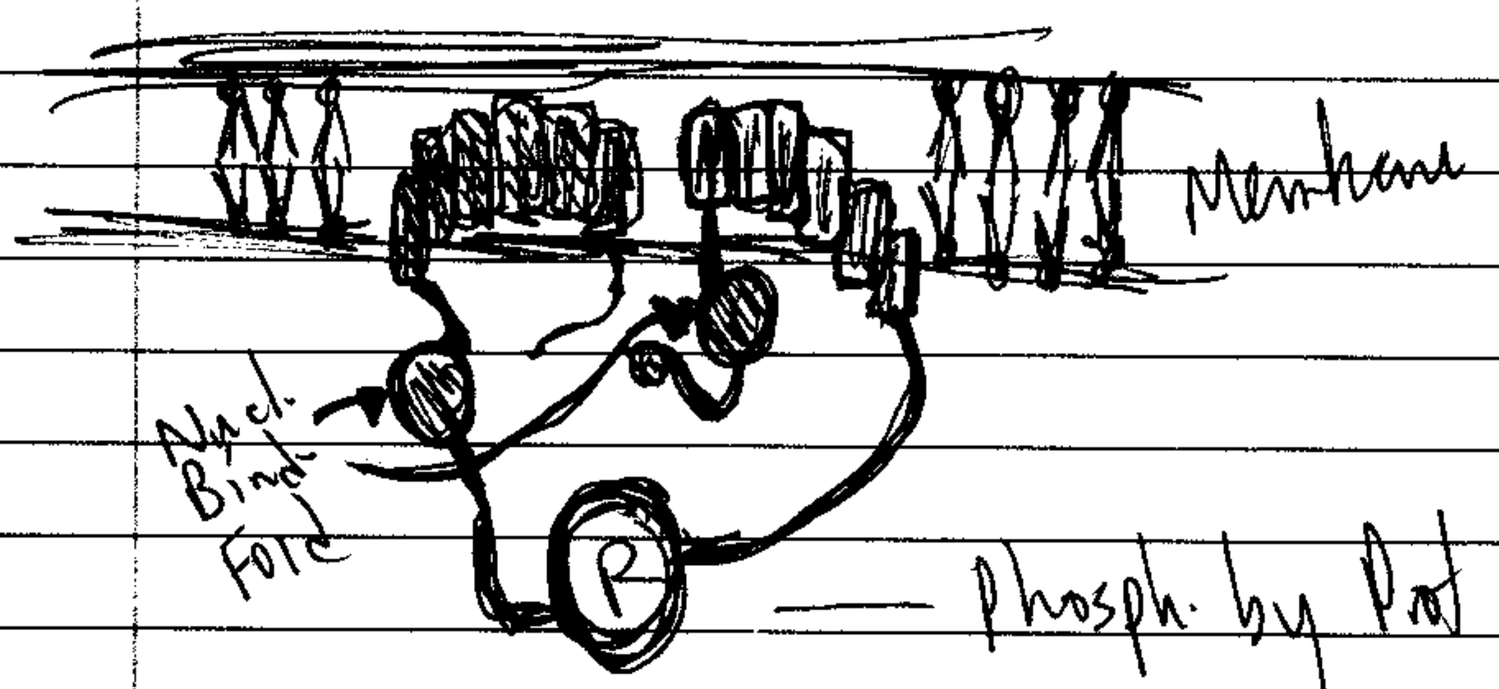




Kopito

K. Gunderson

CFTR- cAMP gates Cl- channel
-homologous to traffic ATPase
-



—— Phosph. by Prot kinase A

CF Mutations
- most in NBF - mch ΔF 508
- most are misprocessed

H
J
E

DShotlis

Structure-Function
- Glutamate conserved in AE1, AE2 AE3
- seems COOH group is important

Glu → Gln	not much effect	except pH dependence changed
→ Ala	not much	
→ Asp	KO'D	

Grant Akon lbn Channel Cloning

Degenerate PCR (of RNA)?

↓

use products to screen library → library from 250 individuals

↓

full clones

↓

Northern

↓

RNase protection (make sense sequences then) and find out where expressed

Zang

Bruce Baker

Sex Determination ♀

X:A

↓

da

sis-b

sis-g

snf

↓

SXL

somatic sex | genetic sex | dosage comp

tra - altern. splicing leads to ♂, ♀ specific RNAs

tra-2

dsx - alternative splicing leads to ♂, ♀ specific RNAs

fx

sxl - no affect in males

NOT ALL SOMATIC SEX DETERMINED IN THIS WAY.

fruitless — ♂ specific muscle development
- also shows up in CNS

Monica Gorman

Dosage compensation

XY : AA XX : AA

2N N N N N N N

in ♂ - chromosome structure changes
- more open
- more lightly staining

mdl gene
- mutants are recessive
- lethal in ♂
- mutants ♀ - ♂ × makes 1N

mle - protein in both ♂ & ♀
- bound along X chromosome
- each gene on X is dosage comp'd.

msl 3 - Monica
msl 2
msl 1 -

} - all seem to bind exactly same place

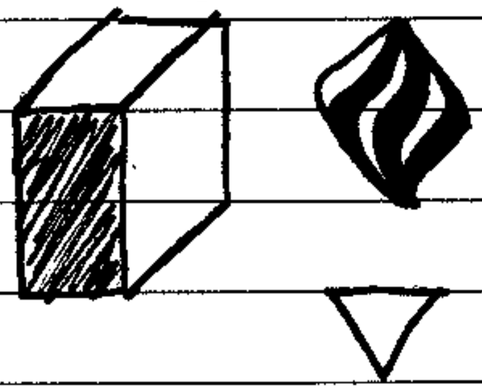
S ——→ Mitosis

↑
- inhibitors of DNA synthesis
- DNA damage
- Mitotic spindle alteration

——→ survival
death
genome Δ

Mitosis Checkpoints
- DNA synthesized
- chromosome integrity
- spindle

} genes involved not required unless damage



Apoptosis
- development
- limit organismal damage

Prapesh - Mitotic Checkpoint & Gene Amplification

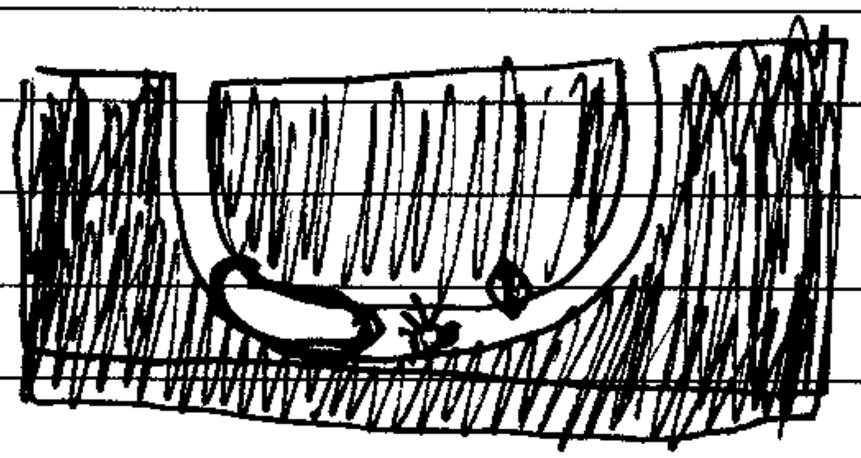
Antifolates Resistance - e.g MTX
① alter enzyme affinity
② alter MTX transport
③ DHFR amplifications

Dave Epel

Signal Transduction

How is calcium released?
What is calcium doing?
- redox changes → peroxidase EIF2B
- G6PDH
- high concentration in egg
- turned on right at fertilization
-

Toxins Defenses
- Inkeeper works...
- multidrug resistance related response

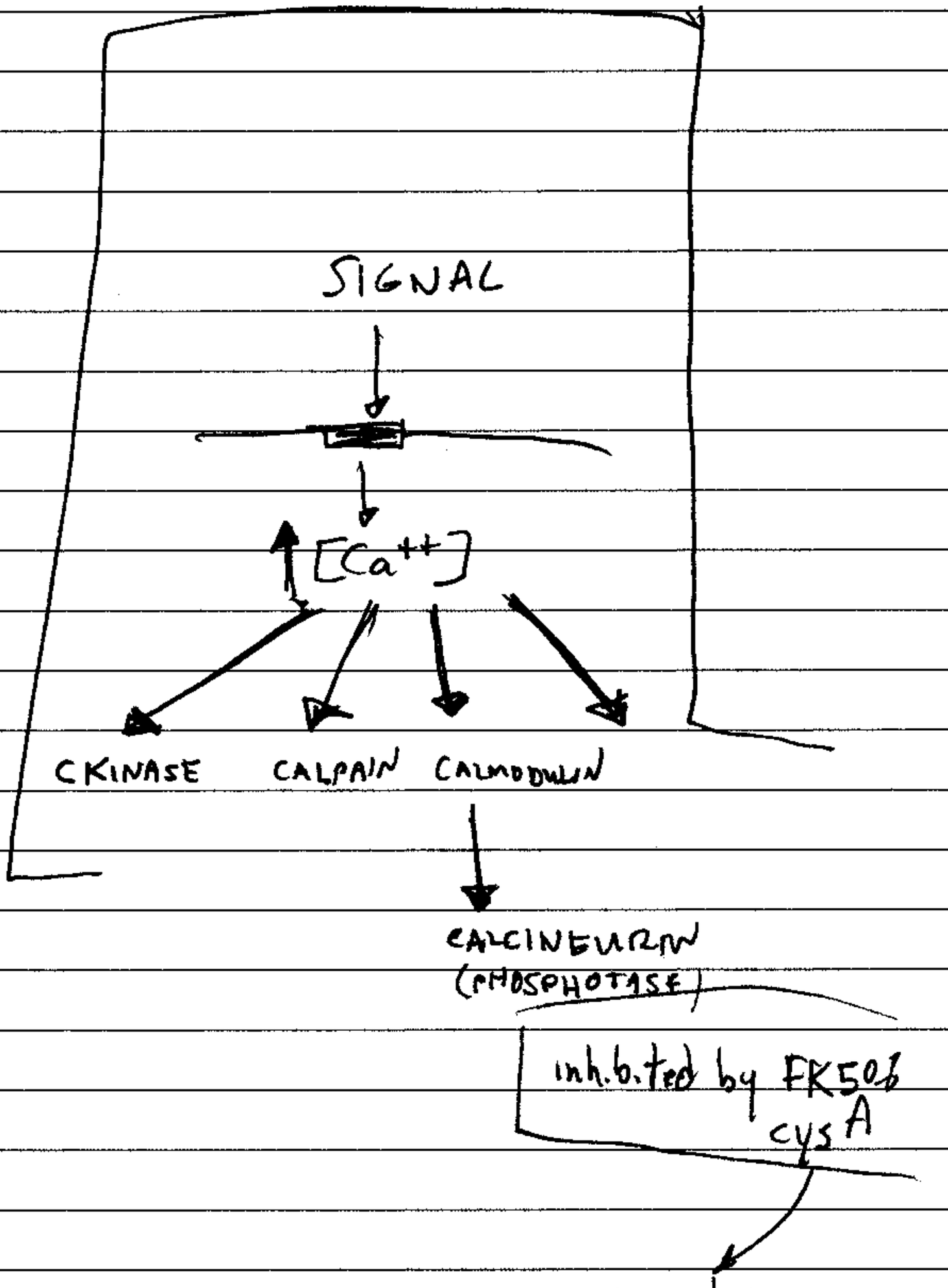


Mike Simon

seventies

Martha Cyert

CALCINEURIN



- where did these come from

D. Perkins

1st heard of Stanford Biol. – Hagfish
2nd – Beadle & Tatum

Neurospora

① Neurospora from natural populations
- 1st samples from Louisiana ... used for 30 years
- on a Sabbatical ... looked for wild ones
Bali, ...
- Mt plasmids & introns

Polymorphisms – v. high

② Heterokaryons

Arg+ Lys−	x	Arg− Lys+	
Het D		Het D	+
Het d		Het d	+
Het D		Het d	−
Het d		Het D	−

THE MEDICAL PEOPLE NEVER PAY ANY ATTENTION TO EXPERIMENTAL ORGANISMS.

③ Chromosome rearrangements
- almost freq. as pts in light UV

Charlie Yanofsky

TTC → TTG OK, TTA —

AAT → AGT —, AAA —, AAG OK

C3+C4 → DAHP → L → → → trp

E.coli

p trpE trpGD trpCF trpD trpA

B.subtilis

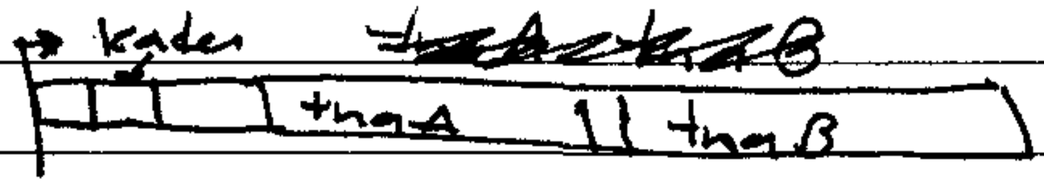
P trpE trpD trpC trpF trpB trpA trpG

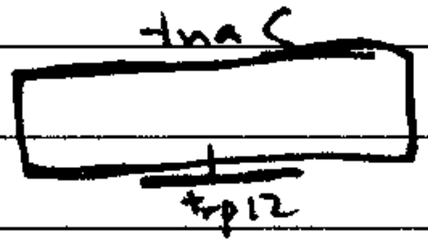
mtrB → RNA binding ... regulates trpG

mtrA → folic acid syn

tryptophanase = tnaA

trp ⇌ indole + pyruvate + NH_3





— what is codon usage?

A REPRESENTATIVE OF SOME OF THE FIGURES I'VE SEEN BEFORE.

Sharon Long

Bob S: late came in & sat in same place.

NodD not active unless GroEL active

Nod C - homologous to β-1,4 synthesizers chitin synthases -
Acetobacter
Frog

NodD
- in lysR + regulators family
- interacts w/ flavone to turn on nod genes

- D1
- D2 } inducible
- D3 - inducer independent

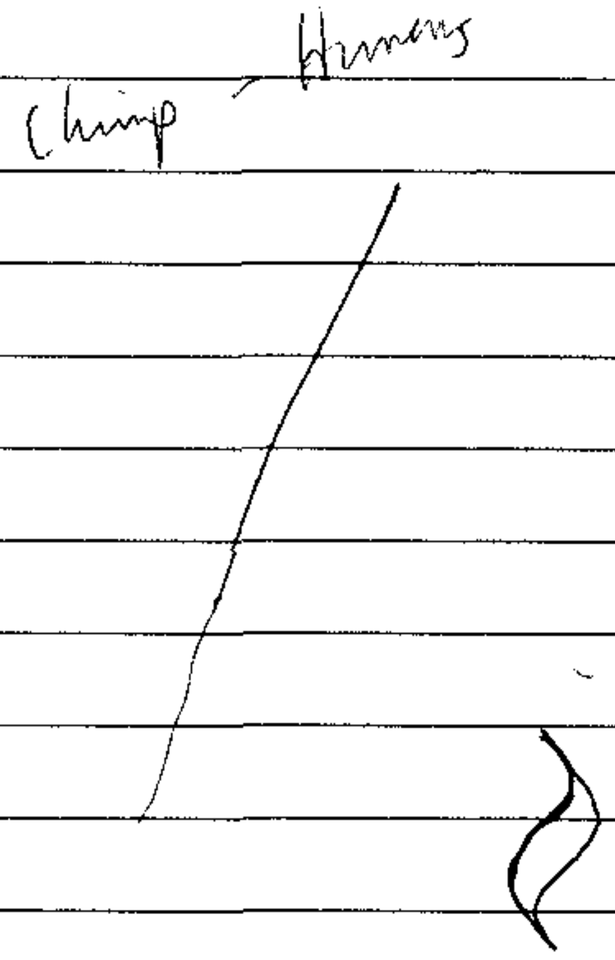
HLA/MHC

How does genetic variation affect function?
① all of polymorphisms in outside

Questions

Are the alleles really ancient..
can you look at DNA
vs. AA tree?

Ken-Tate



Germ

somatic → somatic
somatic → premeiotic

Mutations
- can be limited overall bec. heploids are active

Cre-lox
13 bp recognition