Why are proteins important? enzyme.

Why are genes important? agents of natural selection.

What are proteins made of? polypeptide chains
amino acids — 20
folding defined sequence
folding up. gys S

What are genes made of? dear fully know nucleic acid:
DNA
structure of DNA: 4 bases
2 chains.

Overall relationship — one gene — one enzyme.

Many cases, esp in Neuropera. (cho & co-workers, e.g.)

10. cluse of one mutant which affects one enzymatic step.

Better one co factor — one polypeptide chain.

Detailed relationship — abnormal human haemoglobin

— one amino acid altered. Slide

β = sickle: S, C

— two chains: Two genes?

Social haemoglobin C, S
The genetic hypothesis

1072-b

Fine mapping of genes

Many units in one gene.

E. coli (plague), P. x2 etc in nematodes, but not in salmonella, etc.

The sequence hypothesis

- System to test on.

Coding problem: diff. due to random incorporation.

Spontaneous mutagenesis

Can map gene by mutation and genetics.

High spontaneous mutation rate.

Nevertheless, Freeze generalisation.

Base analogues: in vitro.

Explanations:

Need for a specific mutagen.

Site of protein synthesis

- Ribosomes
- - Protein
- - Antibiotics

First approach: (activating enzymes, ribosome RNA)
How does genome manage to translate : Anderson, Kleene, Politi, etc.

Old protein added to ribosome : new protein or new mRNA.

Phase-locked cell

Protein synthesizes mRNA --- no new messenger RNA.

Wilson

Have compartment.

Brenner

new RNA incorporated into old ribosome.

Two peaks on density centrifugation.

$^{35}$S for one, $^{32}$P for one (remove?"

15 seconds, work here.

New picture: (for all cells) 

What does the other RNA do?

Rate of protein synthesis ep: induced E. coli bacteria.

Place of action.

Pardue

β-galactosidase seen into cell for 4 Hr

Jacob

Suspect unstable intermediate

And rate control is gene rather than as ribosome.