

## J. Conaway - Transcription Elongation w/ RNA pol II

### Elongation Factors

TFIIIF

SII - bypass of stalls

p-TEFb

Elongin/SIII

ELL

### Elongin - 3 peptides

- all 3 needed for maximal activity

773 Elongin A - can stimulate elongation a little bit on its own

118a9 Elongin B - together w/ C stimulates elongation. Facilitates binding of C.

112a9 Elongin C - on own (or w/ B) stimulates elongation

### VHL

- loss or inactivation leads to carcinogenesis

- positionally cloned gene near 3p25.5

- gene sequence no obvious homology to anything

- protein interacts w/ Elongin B + C (in-vivo using epitope tagged protein)

- mutant VHLs have less binding to B + C

- co-immunoprecipitation

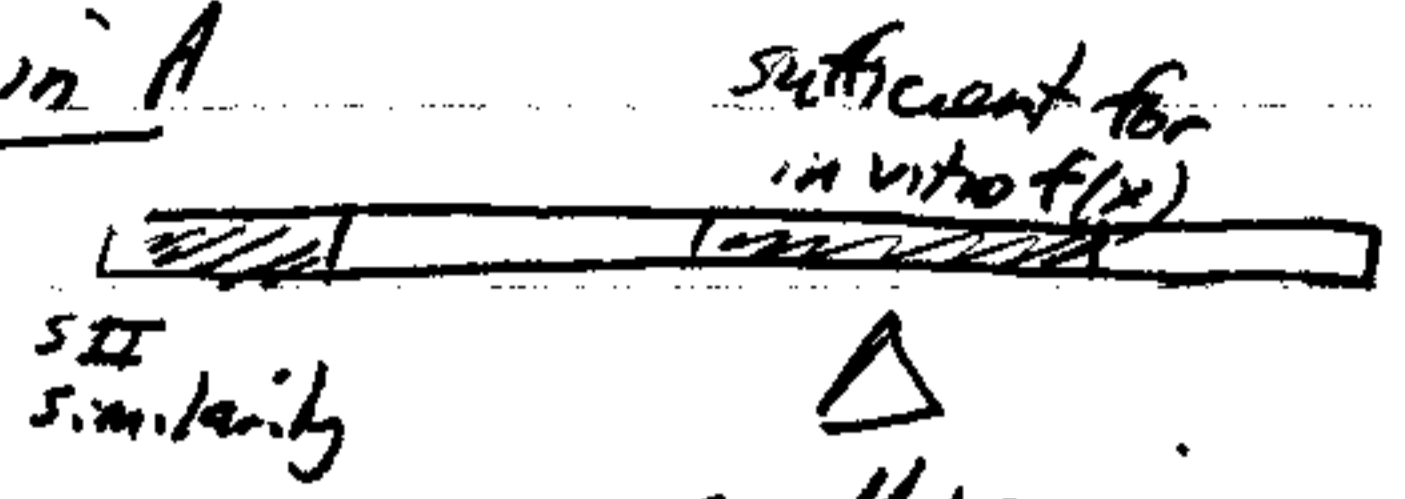
- binding of VHL to B/C competes w/ A binding B/C

- in-vitro VHL inhibits tx. elongation properties of A/B/C

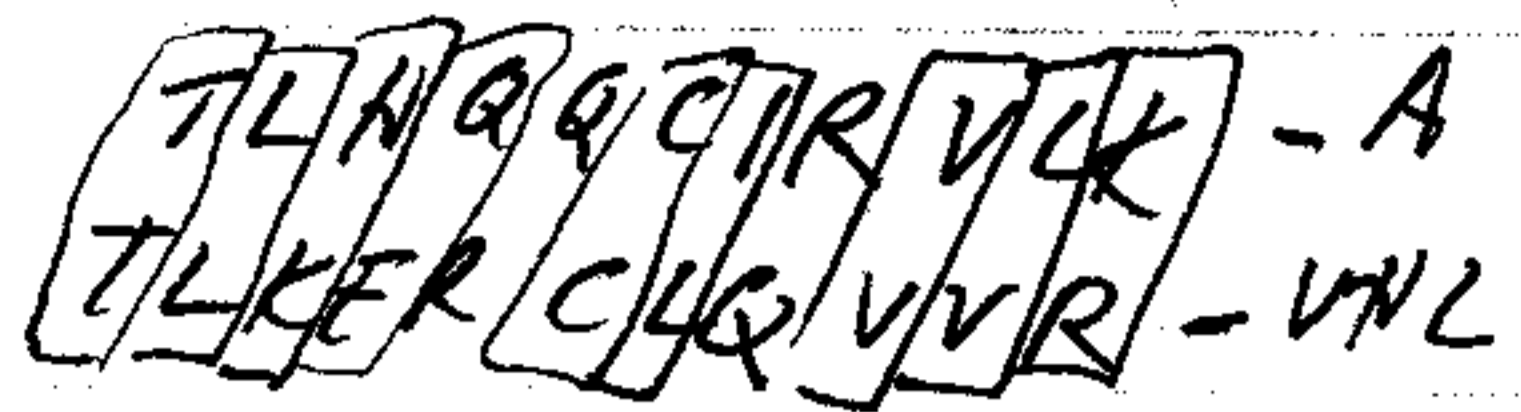
- in-vitro VHL does not inhibit tx in absence of elongin

Yeast?  
Mouse?

### Elongin A



- small region similar to VHL
- this region reqd. for binding ~~to VHL~~ to BIC
- this region is site of many VHL mutations



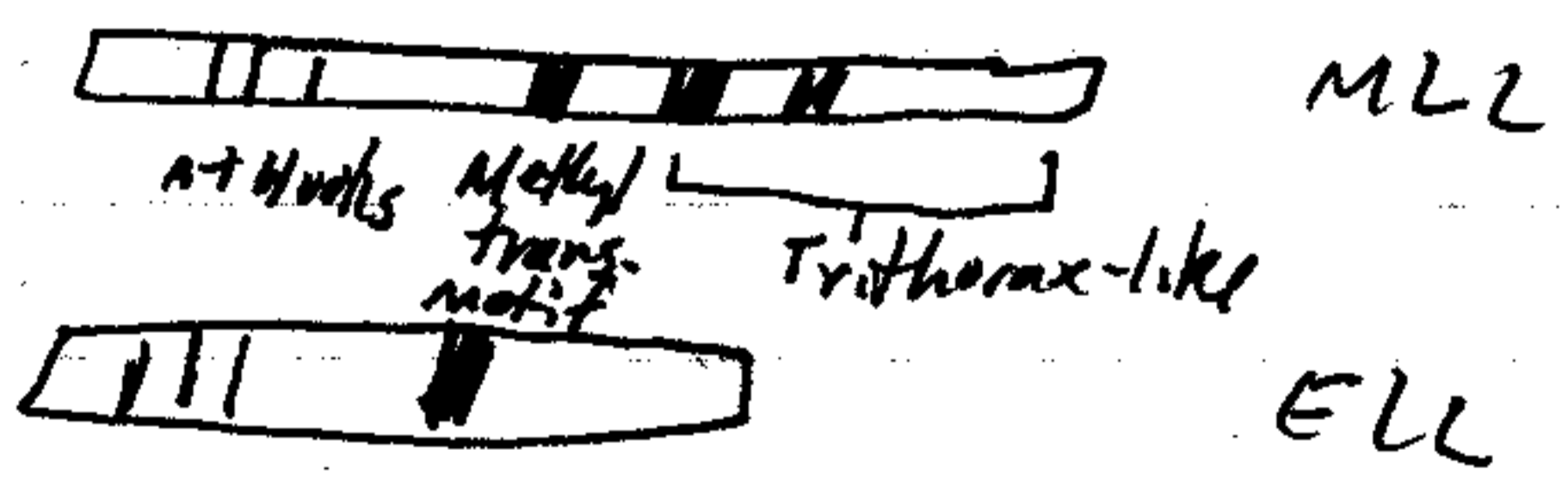
- Cloned many genes in *C. elegans*

- Many genes are constit. expressed in VHL<sup>-</sup> cells that are not constit. in wt cells (e.g. vegF)

### New Elongation Factor

- rat p80
- v. similar to human ELL

ELL - frequent target for translocations in acute myeloid leukemia



- purified recomb. ELL has in-vitro Elongation activity

- can bind polII and prevent entering pre-initiation complex