“Those who bear names that are difficult both to spell and to pronounce are relatively unlikely to be remembered by succeeding generations, regardless of their achievements.”

Friedman M. and Friedland G., Yale University Press, 1988

In Medicine’s 10 Greatest Discoveries
Transcription, splicing, DNA replication, Ser/Thr kinases and cell cycle, Tyr kinases and signal transduction, protein degradation, etc.
Allosteric Change in Enzyme

E' → E

RNA Polymerase σ54

Gene 1

RNA Polymerase σ54

Gene 2

RNA Polymerase σ54

Gene 3
Allosteric Change in Enzyme

E' → E

RNA Polymerase σ54

Gene 1

RNA Polymerase σ54

Gene 2

RNA Polymerase σ54

Gene 3

ATP

RNA polymerase

Gene 2

on
Regulated Recruitment: Transcription and Otherwise
Allosteric Change in Substrate

$S' \rightarrow S$

RNA polymerase

Znt R

RNA polymerase

Mer R

Hg^{++}

RNA polymerase

Cue R

RNA polymerase

Mer R
Regulated Recruitment (Mass Action)
Regulated Recruitment (Mass Action)

- RNA polymerase
- Act
- promoter
Regulated Recruitment (Mass Action)
Regulated Recruitment (Mass Action)
Regulated Recruitment: Transcription and Otherwise
[18] Dr. M. Ptashne, Sloan Kettering (4/3/01) Regulated Recruitment: Transcription and Otherwise
[19] Dr. M. Ptashne, Sloan Kettering (4/3/01) Regulated Recruitment: Transcription and Otherwise
Components of transcription apparatus: Summary

Evidence for global roles of RNA Polymerase II, TFIIH and Srb/mediator complex

Many components have roles at specific subsets of genes

Co-ordinate regulation of genes can occur through specific components (Srb10)
Regulated Recruitment: Transcription and Otherwise

[Diagram showing complex interactions involving ubiquitination, SCF, and proteasome with various substrates and proteins like Sic1, Cln1/2, Swe1, and β-catenin.]
F-box Protein as Locator

- Ub
- E1
- Cdc53p
- Hrt1p/Rbx1p
- Skp1p
- Cdc34p
- Sic1p
- WD
- P
- Cdc4p
STAT Activation
Cytokines: IFNα, b, g, IL-6, etc.
Dr. M. Ptashne, Sloan Kettering (4/3/01) Regulated Recruitment: Transcription and Otherwise
An Activator Bypass Experiment (Abl)

Mayer et al., Current Biology 5, 296, 1995

[31] Dr. M. Ptashne, Sloan Kettering (4/3/01) Regulated Recruitment: Transcription and Otherwise
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