20.109
Synthetic Biology Module
Lecture #3

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CSAIL

Commercial DNA Synthesis Foundries

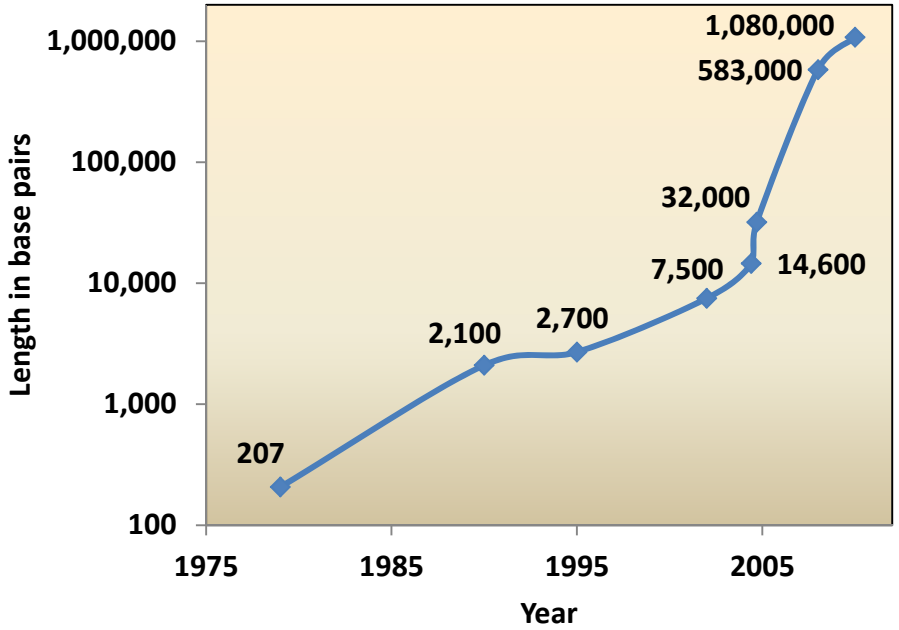
Rob Carlson, University of Washington; Gerald Epstein and Anne Yu, CSIS

18 July 05. Method: Rough Google search. Thus not a thorough survey. No academic facilities.

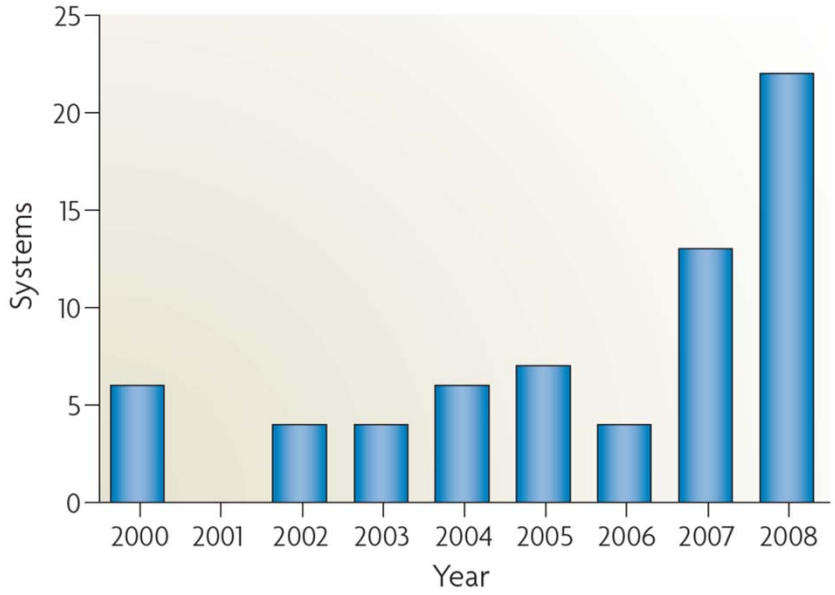
Data Source: Rob Carlson, U of W, Seattle
www.synthesis.cc, rob@synthesis.cc

DNA synthesis & genetic circuits

DNA synthesis

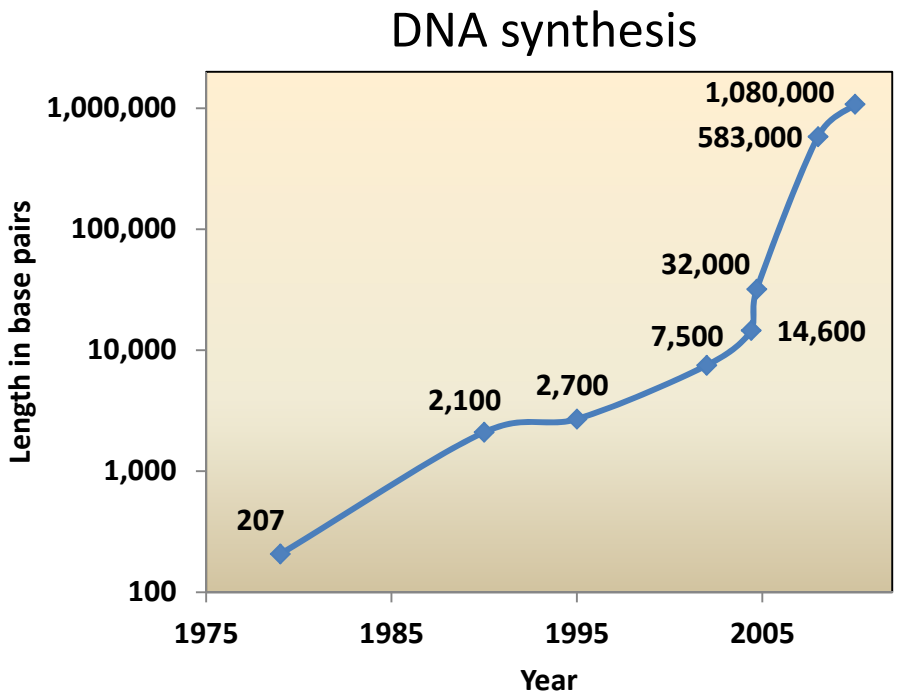


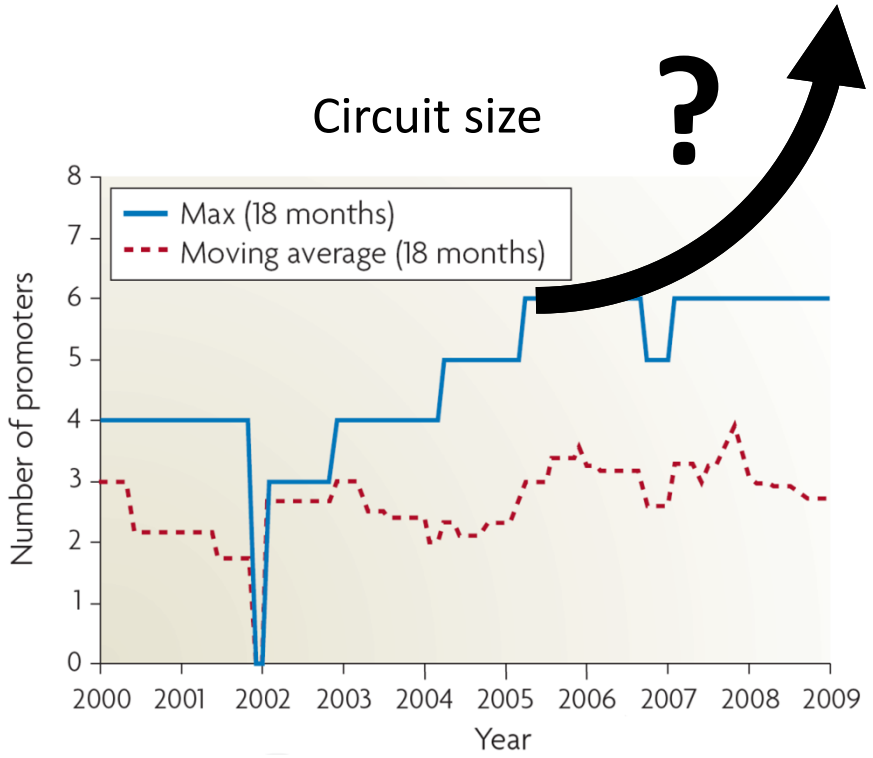
Synbio Pubs



*Sampling of systems in publications with experimental circuits

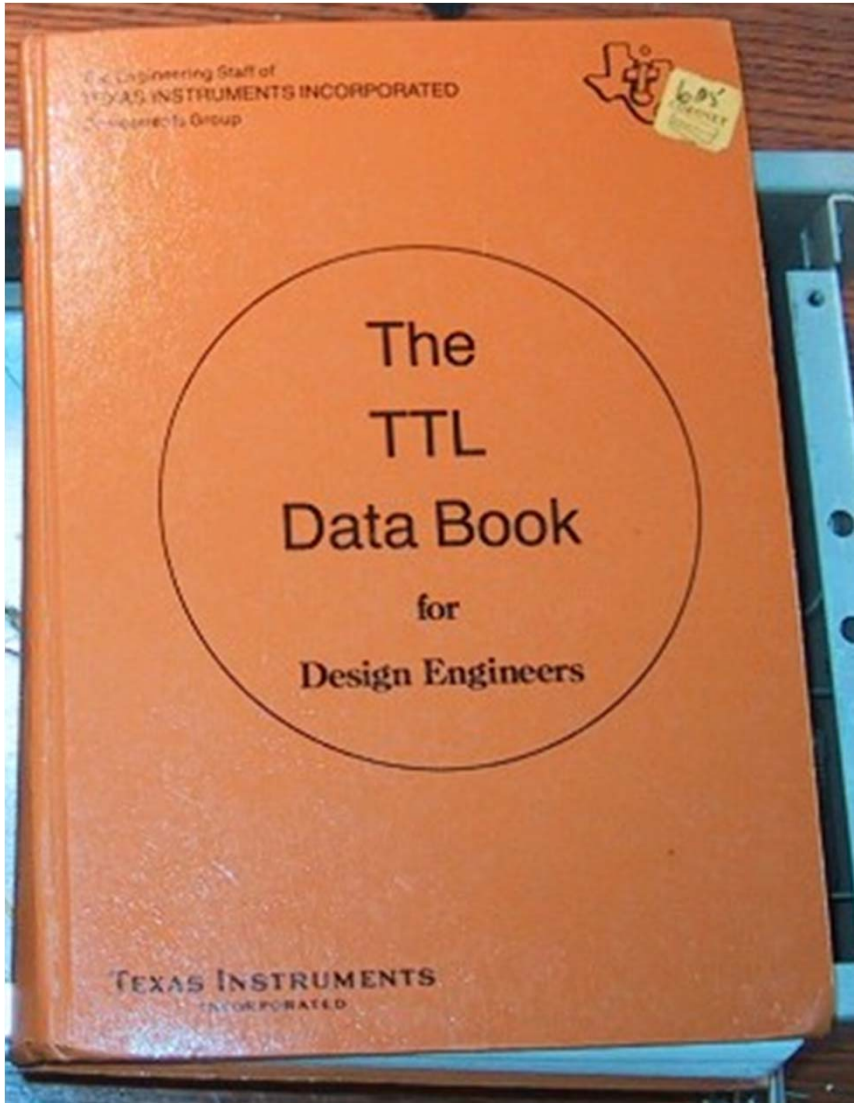
DNA synthesis & genetic circuits





*Sampling of systems in publications with experimental circuits

A collection of reusable parts



SN74LS14

Schmitt Triggers
Dual Gate/Hex Inverter

The SN74LS14 contains logic gates/inverters which accept standard TTL input signals and provide standard TTL output levels. They are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals. Additionally, they have greater noise margin than conventional inverters.

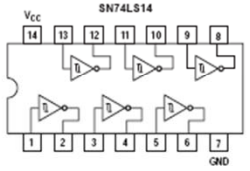
Each circuit contains a Schmitt trigger followed by a Darlington level shifter and a phase splitter driving a TTL totem pole output. The Schmitt trigger uses positive feedback to effectively speed-up slow input transitions, and provide different input threshold voltages for positive and negative-going transitions. This hysteresis between the positive-going and negative-going input thresholds (typically 800 mV) is determined internally by resistor ratios and is essentially insensitive to temperature and supply voltage variations.

ON Semiconductor
Formerly a Division of Motorola
http://onsemi.com

LOW
POWER
SCHOTTKY

LOGIC AND CONNECTION DIAGRAMS

SN74LS14



PLASTIC
N SUFFIX
CASE 646

SOIC
D SUFFIX
CASE 751A

GUARANTEED OPERATING RANGES

Symbol	Parameter	Min	Typ	Max	Unit
V_{CC}	Supply Voltage	4.75	5.0	5.25	V
T_A	Operating Ambient Temperature Range	0	25	70	°C
I_{OH}	Output Current – High			−0.4	mA
I_{OL}	Output Current – Low			8.0	mA

ORDERING INFORMATION

Device	Package	Shipping
SN74LS14N	14 Pin DIP	2000 Units/Box
SN74LS14D	14 Pin	2500/Tape & Reel

December, 1999 – Rev. 0

Publication Order Number:
SN74LS14/D

Registry of Standard Biological Parts

Go
Search

page | discussion | view source | history | Log in / create account

The Registry of Standard Biological Parts has moved from parts.mit.edu to partsregistry.org.
References to the Registry at parts.mit.edu will be automatically redirected to the new site.

- Browse Parts by Type

Featured Parts

Help & Documentation

Users & Groups

Apply here for a Registry account

Registry News

- We are considering releasing the Registry's DNA Repository and Library system to the Registry labs and IGEM teams. This is the system we use to keep track of parts in our freezer boxes and plates. Please check it out and let us know what you think. - June 2, 2008
- A bug that kept Internet Explorer users from seeing the Part menu on Part pages has been fixed. Now, if you go to a part, you will see menu choices for hard information and physical location. - June 2, 2008
- The sequence and features for all parts are available through DAS, the Distributed Annotation System. Learn more here - May 26, 2008
- Changes to the Registry software are underway. Check it out!
- We have a new tutorial for starting teams in the Help section
- We are starting an editorial board for promoting well-defined and useful parts to BioBrick™ part status. To join this effort check the BioBrick™ Part Program
- There is a problem with using primers VR and VF2 to PCR parts containing B0015 or B0010.
- News archive...

Report any bugs here | Request new features here | See new features here | See old bugs,requests, and features here

Registry Tools


Add a part


Search Parts
More...


Measurement


DNA Repositories


Sequence Analysis


Send Parts to the Registry

Parts From Groups

- 2008 iGEM Teams
- 2007 iGEM Teams
- 2006 iGEM Teams
- 2005 iGEM Teams
- Parts by Lab

Registry Community

Frequently Asked Questions

Part Types

Browse parts by projects:

iGEM 2007 | iGEM 2006 | iGEM 2005 | Labs | Courses | Featured Parts

Or browse parts by part categories:

Systems

- Measurement ?
- Measurement (Under Development) ?
- Projects(empty)

Devices

- Reporters ?
- Protein Generator ?
- Inverters ?
- Composite Devices ?
- Signalling ?
- Measurement ?

Parts

- Ribosome Binding Sites ?
- Protein Coding ?
- Regulatory ?
- Terminators ?
- RNA ?
- Conjugation ?
- DNA ?

Chassis

- E.coli Strains ?
- Cell-Free Systems ?

Mammalian

Vectors

- Plasmids ?

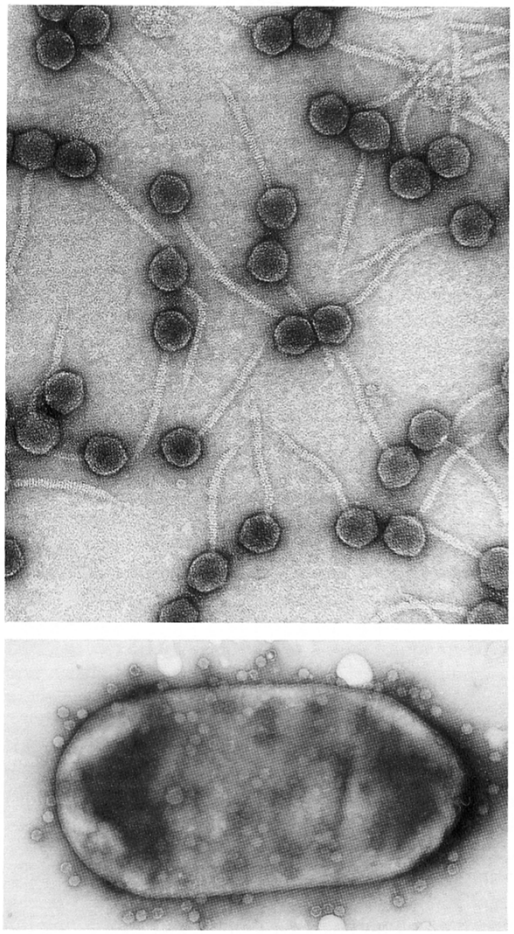
Other

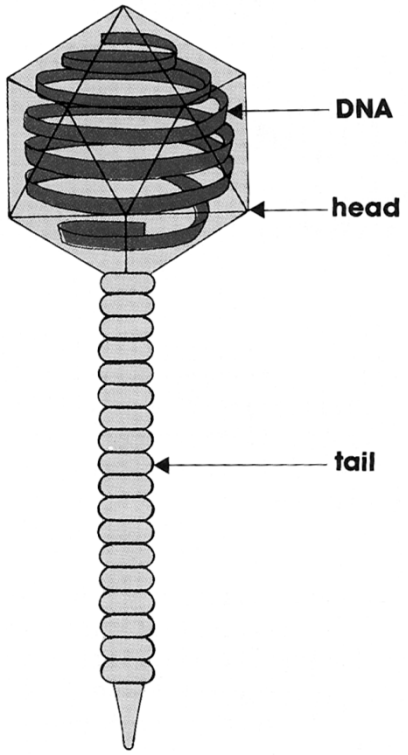
- Yeast Parts ?
- Construction Intermediate ?
- PCR Primer ?
- Tags ?
- Other
- Deleted
- Bacteriophage T7

- For more information on each part type, click the ? for help documentation next to the category name.
- To discuss how to measure the functions of these parts visit Characterization of Parts

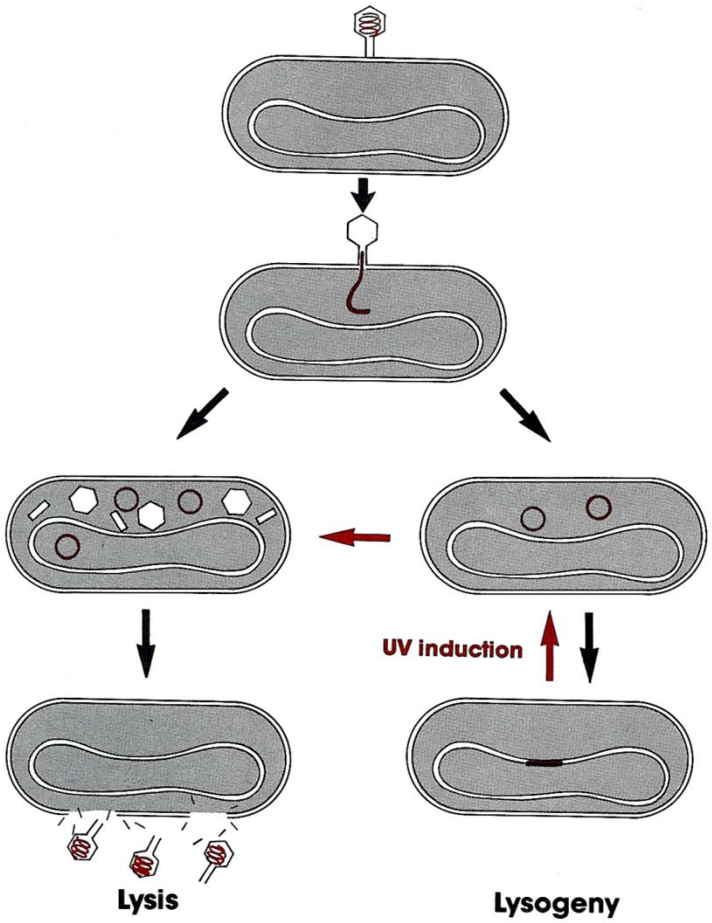
System elements:
Lambda repressor (cI)

Bacteriophage λ

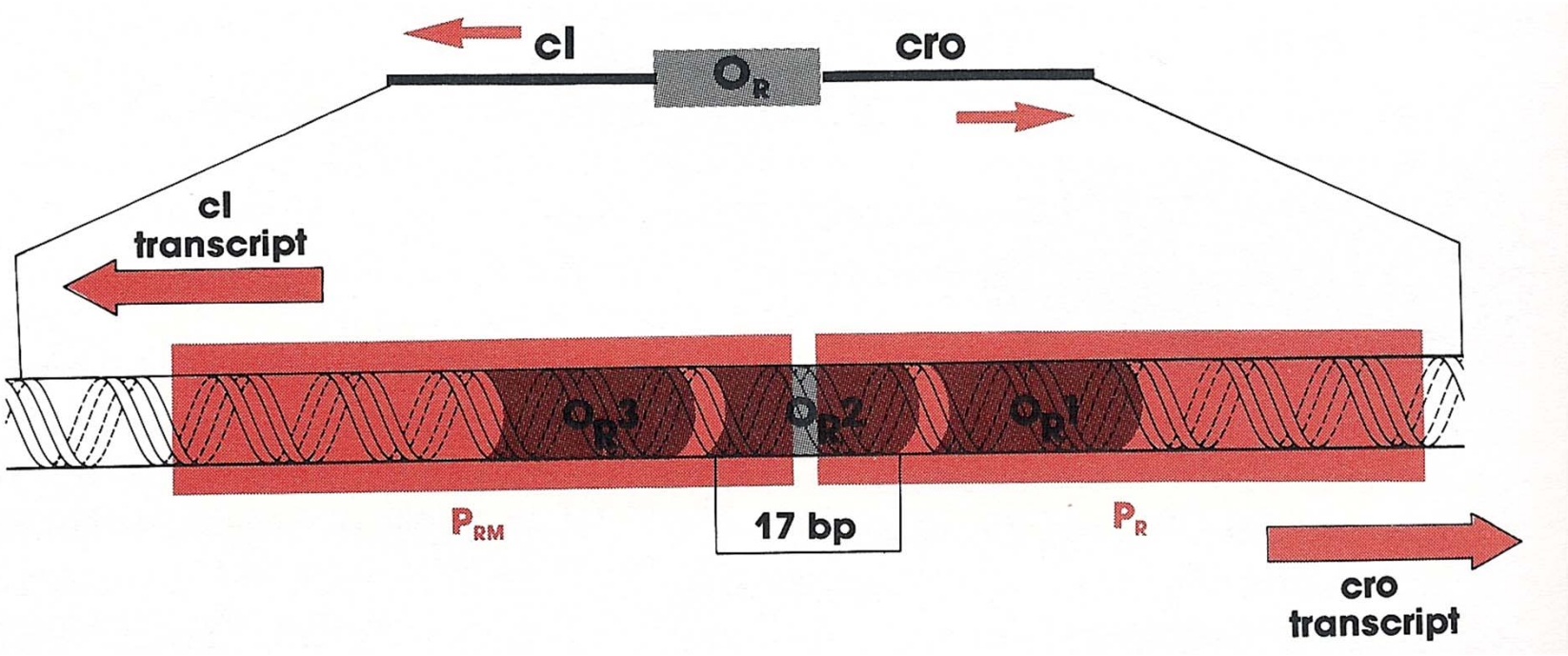




Lysis/Lysogeny



P_R and P_{RM} Promoters



The Promoters

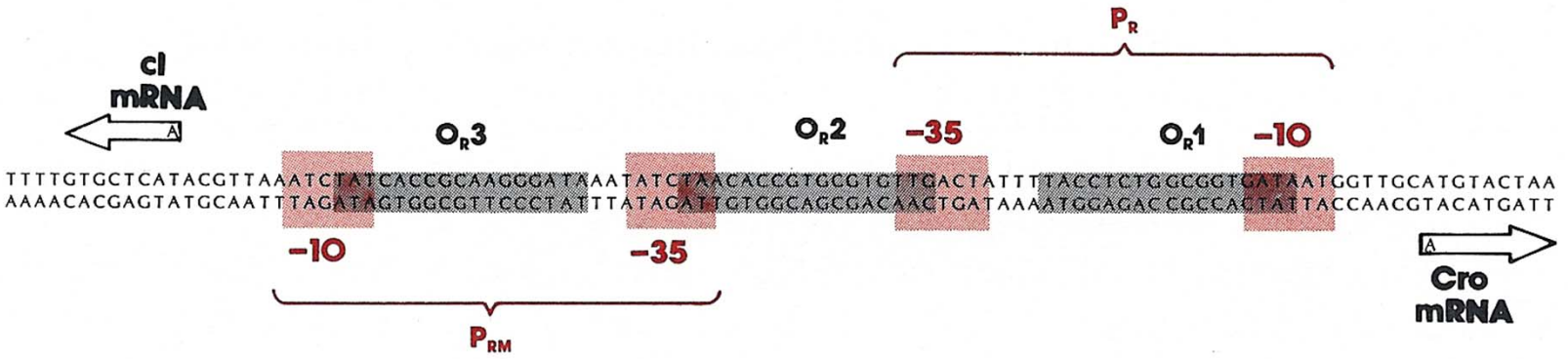
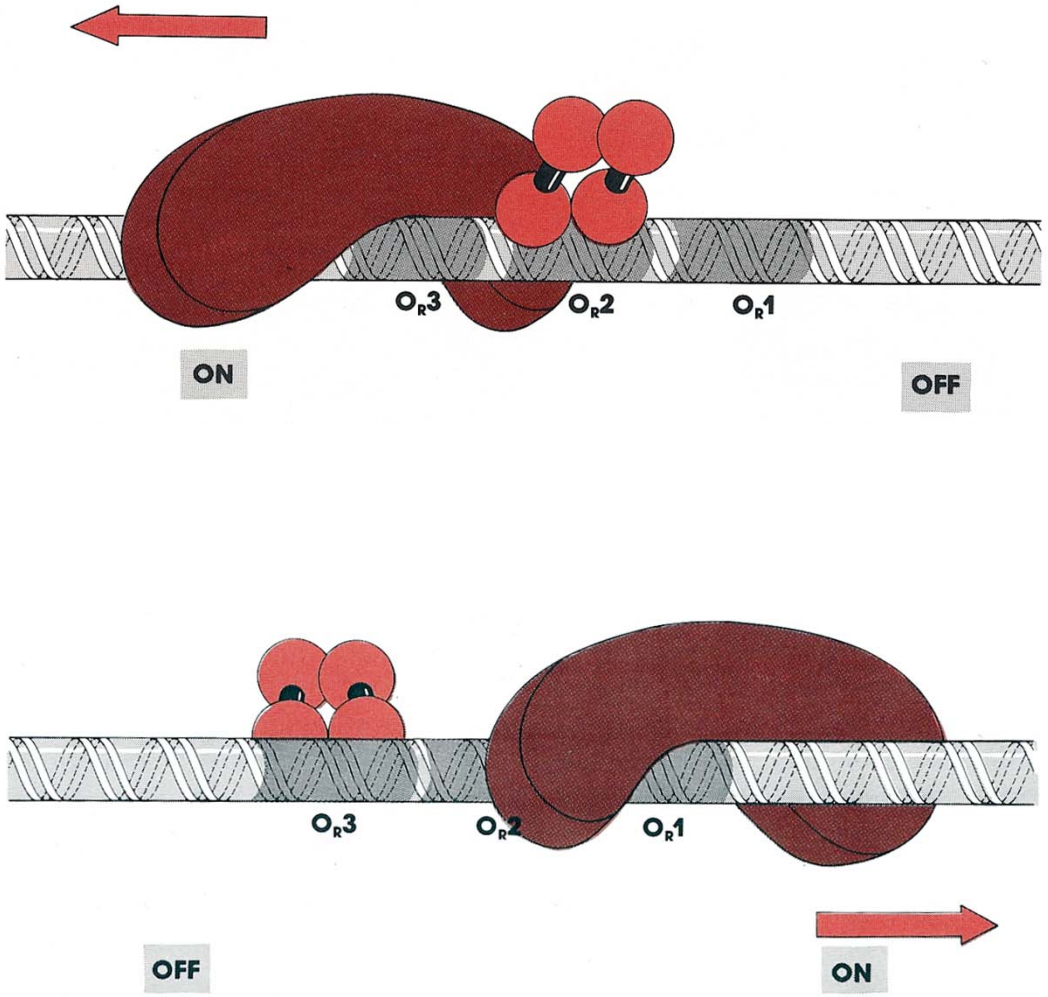


Table 2.3. Lambda promoter sequences compared with the consensus promoter. The differences are shown in red.

	−35							−10					
Consensus	T	T	G	A	C	A	– 17bp –	T	A	T	A	A	T
λP_{RM}	T	A	G	A	T	A	– 17bp –	T	A	G	A	T	T
λP_R	T	T	G	A	C	T	– 17bp –	G	A	T	A	A	T

Repressor Positive and Negative Control



Cooperative Binding