Contents

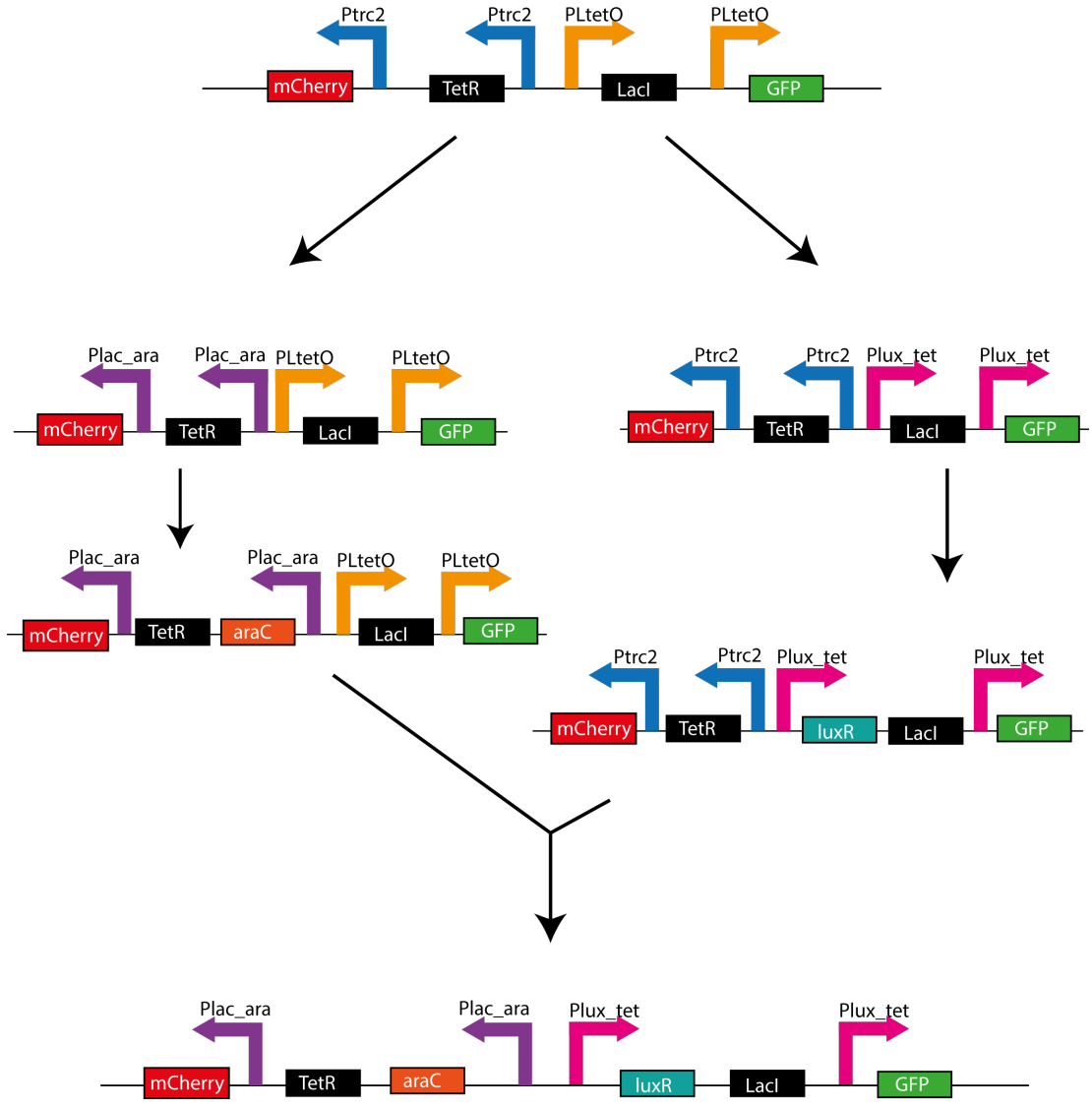
1 Designing new switches

1.1 Introduction

In the previous Chapters I studied the effect that adding positive feedback loops to the genetic toggle switch has on the robustness of the system. In this Chapter I provide the experimental design for the construction of the genetic toggle switch with single and double positive autoregulation in the lab.

Structurally, this Chapter is organised as follows: First I provide an overview of the cloning plan, by listing the relevant BioBrick parts used and their interactions. Then I outline the methods that are used during the cloning procedure and finally I provide the experimental design for producing these switches.

1.2 Cloning overview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Ptrc2
PLtetO
PLtetO
mCherry
TetR
LacI
GFP
Plac_ara
Plac_ara
PLtetO
PLtetO
mCherry
TetR
LacI
GFP
Ptrc2
Ptrc2
Plux_tet
Plux_tet
mCherry
TetR
LacI
GFP
Plac_ara
Plac_ara
PLtetO
PLtetO
mCherry
TetR
araC
LacI
GFP
Ptrc2
Ptrc2
Plux_tet
Plux_tet
mCherry
TetR
luxR
LacI
GFP
Plac_ara
Plac_ara
Plux_tet
Plux_tet
mCherry
TetR
araC
luxR
LacI
GFP

Figure 1.1

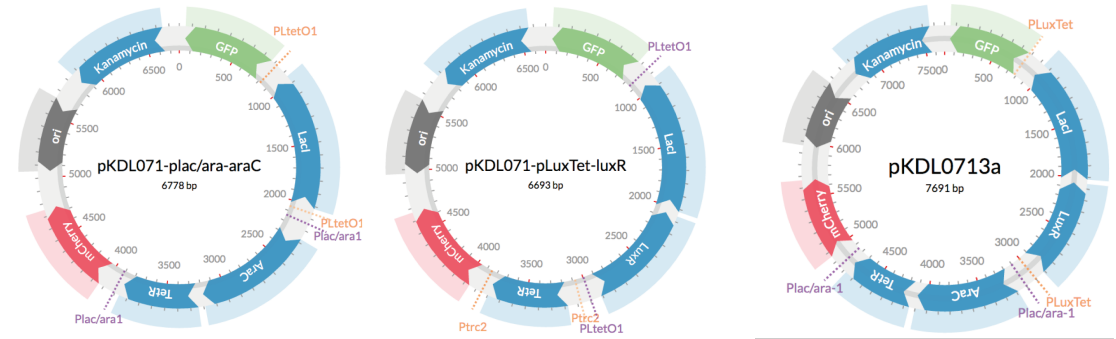

Figure 1.2

1.3 Experimental design