

ロンドレーズ研究室

[DNAでつくる生体分子反応ネットワーク]

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専門分野 生体分子マイクロ工学

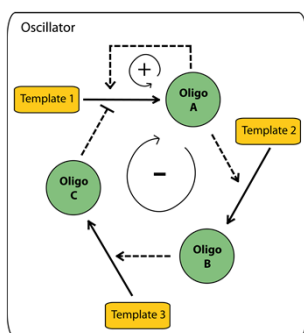
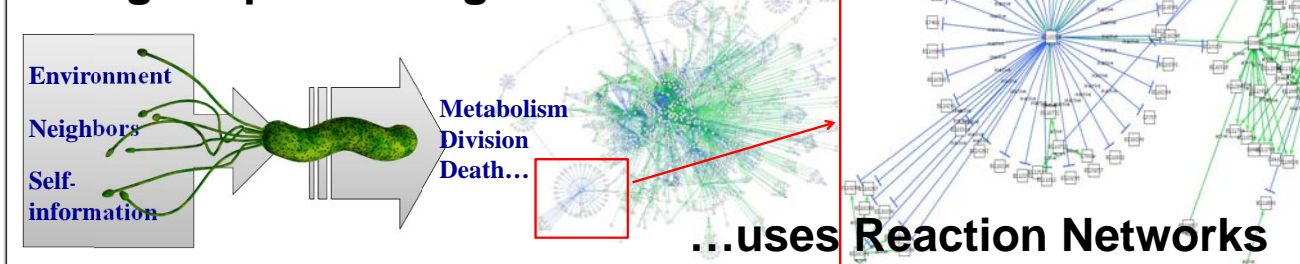
Complex *in vitro* behaviors

生体分子を用いた*in vitro*系での複雑な動的システムの構築

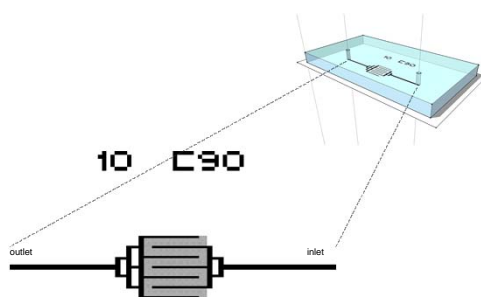
Networks of interacting chemical reactions can lead to very complex behaviors, the ultimate example being life itself. For example, inside live cell Gene Networks can be arranged into switches, gates, memory element or oscillators. We want to build such dynamic systems, but in a artificial (*in vitro*) settings. To do this, we explore both homogeneous systems and more complex setup where diffusion and transport become key factors

- ◆ DNA isothermal amplification reaction (DNA等温増幅反応)
- ◆ Molecular computing (分子計算)
- ◆ DNA based in vitro reaction networks (DNA分子による*in vitro*反応ネットワーク)
- ◆ Microchambers arrays (マイクロチャンバレイによる分析)
- ◆ Single molecule detection (一分子検出/観察)

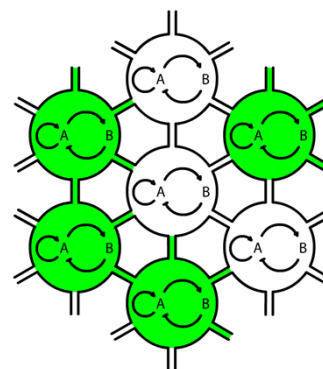
Biological processing of information....



Topology of a biochemical oscillator



Microfluidic Trap



Network of oscillators