# Connecting SBML to SBOL via RDF/XML Annotation

Nicholas Roehner

University of Utah

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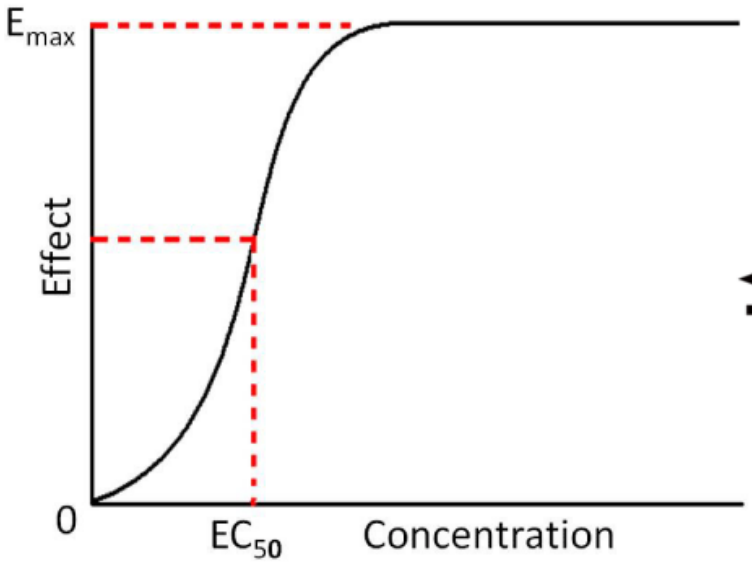
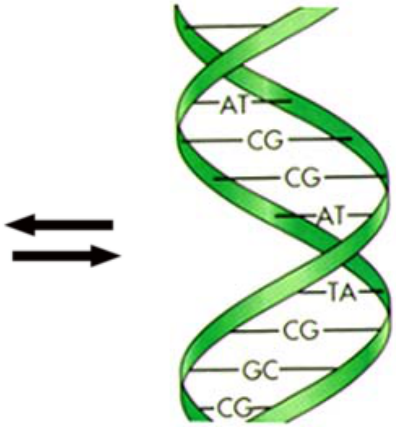
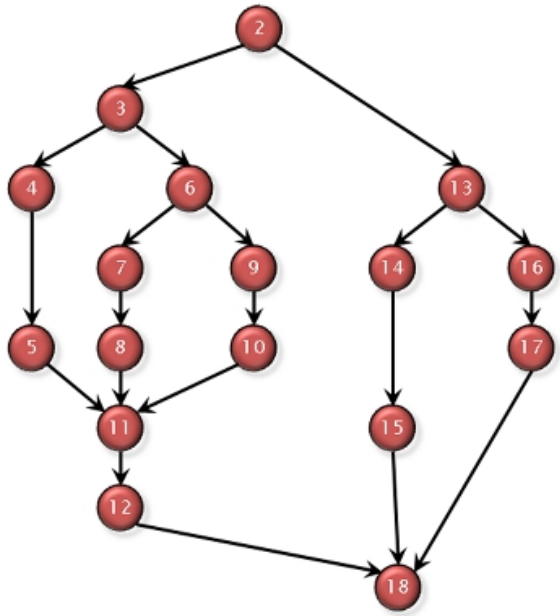
# Genetic Technology Mapping

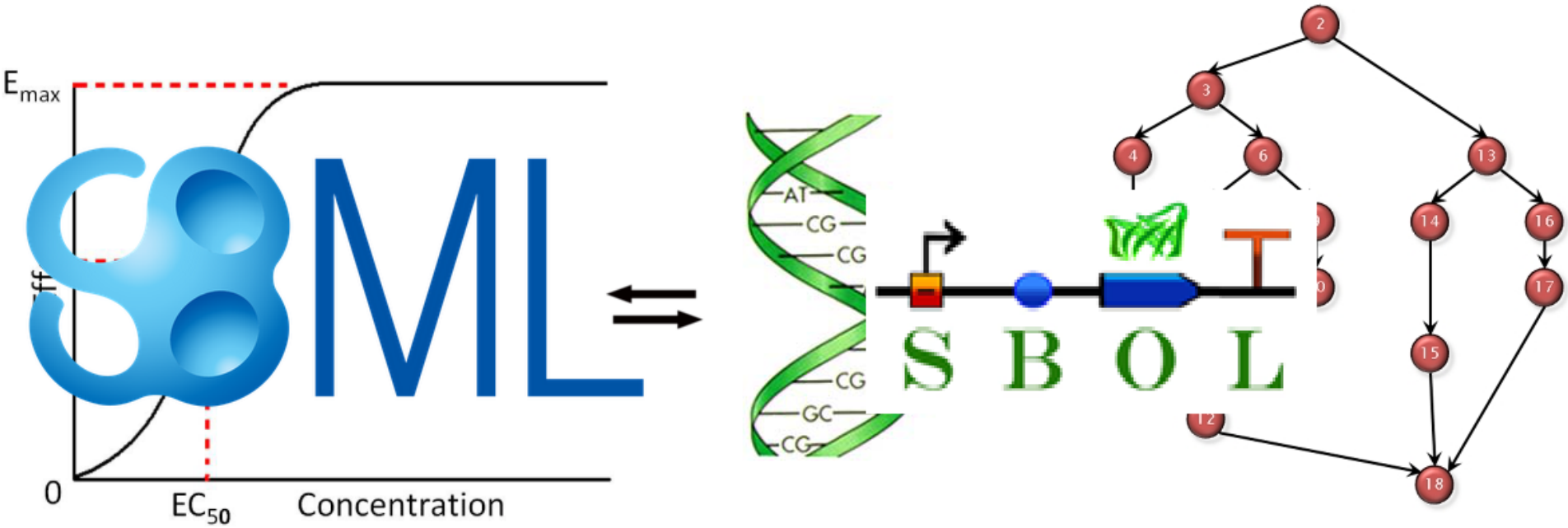



Low-Level Model Technology High-Level Model

# Genetic Technology Mapping




Low-Level Model Technology High-Level Model

# Connecting SBML to SBOL

# RDF/XML Annotation in SBML

```
<SBML_ELEMENT + + + metaid="SBML_META_ID" + + + >
  <annotation>
    <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
                HISTORY/RELATION_ELEMENT NAMESPACES>
      <rdf:Description rdf:about="#SBML_META_ID">
        [HISTORY]
        <RELATION_ELEMENT>
          <rdf:Bag>
            <rdf:li rdf:resource="URI"/>
            . . .
          </rdf:Bag>
        </RELATION_ELEMENT>
        . . .
      </rdf:Description>
    </rdf:RDF>
  </annotation>
</SBML_ELEMENT>
```

# RDF/XML ModelToSBOL Annotation

```
<SBML_ELEMENT + + + metaid="SBML_META_ID" + + + >
  <annotation>
    <ModelToSBOL xmlns="http://sbolstandard.org/modeltosbol/1.0#">
      <rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
               xmlns:mts="http://sbolstandard.org/modeltosbol/1.0#">
        <rdf:Description rdf:about="#SBML_META_ID">
          <mts:DNAComponents>
            <rdf:Seq>
              <rdf:li rdf:resource="DNA_COMPONENT_URI"/>
              . . .
            </rdf:Seq>
          </mts:DNAComponents>
        </rdf:Description>
      </rdf:RDF>
    </ModelToSBOL>
  </annotation>
</SBML_ELEMENT>
```

# Final Remarks

- RDF/XML annotation of SBML with SBOL allows us to build up a library of low-level models mapped to DNA components.
- Such a library enables analysis and verification of system behavior following the composition or synthesis of its DNA components.
- Allowing annotation of a single model element with an ordered sequence of DNA components enables us to include DNA components that have no counterpart in some of our models (e.g. terminators) without creating composite components.