

# Supplementary Information

## 1. Input Files

Below are input files for simulations described in the text of the paper. These input files may be used as input to the Tabasco simulator (code available at <http://openwetware.org/wiki/Tabasco>) to recreate the results of the paper.

### 1.1. Input Files for Simple Gene Expression Models

#### Tabasco Input File for Single-molecule Simple Gene Expression model

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```
<REQUEST>
<EXECUTE-SIMULATION runs="500" random_seed="34143" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="TRAFFIC_JAM">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="700" speed="40" id="2" organism_id="2" footprint="15" name="coli Pol" />
<SPECIES name="test" n="0" ID="3" organism="1" />
<REACTIONS>
<REACTION>
3>0;7E-4
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="3800" copy_number="1" entry_rate_constant="50000" entry_offsite="3800">
<PROMOTER start="405" stop="428" startsite="423" name="phiOL" organism_id="1">
<POLYMERASE polymeraseID="2" aon="4e7" aoff="4" ainiton="1.2" runoff_percent="0" aelong="0.23" arecyc="0" />
</PROMOTER>
<TERMINATOR start="3600" stop="3610" stopsite="3610" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
</TERMINATOR>
<RBS start="495" stop="500" startsite="500" initstepsize="20" strength="1.15e4" stopsite="522" protid="3" initRateConstant="0.14"
mrnadeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>
```

---

#### Tabasco Input File for Species-level Simple Gene Expression model

---

```
<REQUEST>
<EXECUTE-SIMULATION runs="1000" random_seed="34143" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="TRAFFIC_JAM">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="700" speed="40" id="2" organism_id="2" footprint="15" name="coli Pol" />
<SPECIES name="rib" n="10000" ID="3" organism="1" />
<SPECIES name="pol" n="700" ID="4" organism="1" />
<SPECIES name="promoter" n="1" ID="5" organism="1" />
<SPECIES name="pol-promoter" n="0" ID="6" organism="1" />
<SPECIES name="pol-promoter-init" n="0" ID="7" organism="1" />
<SPECIES name="pol-dna-elong" n="0" ID="8" organism="1" />
<SPECIES name="rbs" n="0" ID="9" organism="1" />
<SPECIES name="rib-rbs" n="0" ID="10" organism="1" />
```

```

<SPECIES name="rib-elong" n="0" ID="11" organism="1" />
<SPECIES name="cust_prot" n="0" ID="12" organism="1" />
<REACTIONS>
<REACTION>
4+5>6;4e7
</REACTION>
<REACTION>
6>4+5;4
</REACTION>
<REACTION>
6>7;1.2
</REACTION>
<REACTION>
7>5+8;0.23
</REACTION>
<REACTION>
8>4+9;0.645
</REACTION>
<REACTION>
3+9>10;1.15e4
</REACTION>
<REACTION>
10>9+11;0.1308
</REACTION>
<REACTION>
11>3+12;20
</REACTION>
<REACTION>
12>0;7e-4
</REACTION>
<REACTION>
9>0;2.5e-3
</REACTION>
<REACTION>
10>3;2.5e-3
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="3800" copy_number="1" entry_rate_constant="50" entry_offsite="850">
<PROMOTER start="405" stop="428" startsite="423" name="phiOL" organism_id="1">
<POLYMERASE polymeraseID="2" aon="0" aoff="4" ainiton="1.2" runoff_percent="35" aelong="5" arecyc="0.7" />
</PROMOTER>
<TERMINATOR start="3600" stop="3610" stopsite="3610" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
</TERMINATOR>
<RBS start="485" stop="500" startsite="500" initstepsize="50" strength="0" stopsite="3500" protid="3" initRateConstant="0.14"
mrnadeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>

```

---

## 1.2. Input Files for Polymerase Interaction Simulations

### Tabasco Input File for Downstream Falloff

---

```

<REQUEST>
<EXECUTE-SIMULATION runs="100" random_seed="34206" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="DOWNSTREAM_FALL_OFF">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="700" speed="300" id="2" organism_id="1" footprint="15" name="T7 pol" />
<POLYMERASE n="700" speed="40" id="3" organism_id="2" footprint="15" name="Coli pol" />
<SPECIES name="test-1" n="0" ID="4" organism="1" />
<SPECIES name="test-2" n="0" ID="5" organism="1" />
<REACTIONS>
<REACTION>

```

```

4>0;7E-4
</REACTION>
<REACTION>
5>0;7E-4
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="4000" copy_number="1" entry_rate_constant="5000" entry_offsite="3950">
<PROMOTER start="405" stop="428" startsite="423" name="A1" organism_id="2">
    <POLYMERASE polymeraseID="3" aon="1.5e7" aoff="0.28" ainiton="0.2" runoff_percent="100" aelong="6" arecyc="0" />
</PROMOTER>
<PROMOTER start="1505" stop="1528" startsite="1523" name="phi10" organism_id="1">
    <POLYMERASE polymeraseID="2" aon="1.26e8" aoff="0.2" ainiton="1.2" runoff_percent="70" aelong="5" arecyc="0.7" />
</PROMOTER>
<TERMINATOR start="3900" stop="3910" stopsite="3910" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
<POLYMERASE ID="3" efficiency="0.99" />
</TERMINATOR>
<RBS start="485" stop="500" startsite="500" initstepsize="50" strength="1.15e4" stopsite="1499" protid="4"
initRateConstant="0.14" mrradeg="2.5e-3" />
<RBS start="1585" stop="1600" startsite="1600" initstepsize="50" strength="1.15e4" stopsite="3600" protid="5"
initRateConstant="0.14" mrradeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>

```

---

## Tabasco Input File for Upstream Falloff

---

```

<REQUEST>
<EXECUTE-SIMULATION runs="100" random_seed="34206" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="UPSTREAM_FALL_OFF">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="700" speed="300" id="2" organism_id="1" footprint="15" name="T7 pol" />
<POLYMERASE n="700" speed="40" id="3" organism_id="2" footprint="15" name="Coli pol" />
<SPECIES name="test-1" n="0" ID="4" organism="1" />
<SPECIES name="test-2" n="0" ID="5" organism="1" />
<REACTIONS>
<REACTION>
4>0;7E-4
</REACTION>
<REACTION>
5>0;7E-4
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="4000" copy_number="1" entry_rate_constant="5000" entry_offsite="3950">
<PROMOTER start="405" stop="428" startsite="423" name="A1" organism_id="2">
    <POLYMERASE polymeraseID="3" aon="1.5e7" aoff="0.28" ainiton="0.2" runoff_percent="100" aelong="6" arecyc="0" />
</PROMOTER>
<PROMOTER start="1505" stop="1528" startsite="1523" name="phi10" organism_id="1">
    <POLYMERASE polymeraseID="2" aon="1.26e8" aoff="0.2" ainiton="1.2" runoff_percent="70" aelong="5" arecyc="0.7" />
</PROMOTER>
<TERMINATOR start="3900" stop="3910" stopsite="3910" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
<POLYMERASE ID="3" efficiency="0.99" />
</TERMINATOR>
<RBS start="485" stop="500" startsite="500" initstepsize="50" strength="1.15e4" stopsite="1499" protid="4"
initRateConstant="0.14" mrradeg="2.5e-3" />
<RBS start="1585" stop="1600" startsite="1600" initstepsize="50" strength="1.15e4" stopsite="3600" protid="5"
initRateConstant="0.14" mrradeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>

```

---

## Tabasco Input File for Traffic Jam

---

```
<REQUEST>
<EXECUTE-SIMULATION runs="100" random_seed="34206" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="TRAFFIC_JAM">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="700" speed="300" id="2" organism_id="1" footprint="15" name="T7 pol" />
<POLYMERASE n="700" speed="40" id="3" organism_id="2" footprint="15" name="Coli pol" />
<SPECIES name="test-1" n="0" ID="4" organism="1" />
<SPECIES name="test-2" n="0" ID="5" organism="1" />
<REACTIONS>
<REACTION>
4>0;7E-4
</REACTION>
<REACTION>
5>0;7E-4
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="4000" copy_number="1" entry_rate_constant="5000" entry_offsite="3950">
<PROMOTER start="405" stop="428" startsite="423" name="A1" organism_id="2">
<POLYMERASE polymeraseID="3" aon="1.5e7" aoff="0.28" ainiton="0.2" runoff_percent="100" aelong="6" arecyc="0" />
</PROMOTER>
<PROMOTER start="1505" stop="1528" startsite="1523" name="phi10" organism_id="1">
<POLYMERASE polymeraseID="2" aon="1.26e8" aoff="0.2" ainiton="1.2" runoff_percent="70" aelong="5" arecyc="0.7" />
</PROMOTER>
<TERMINATOR start="3900" stop="3910" stopsite="3910" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
<POLYMERASE ID="3" efficiency="0.99" />
</TERMINATOR>
<RBS start="485" stop="500" startsite="500" initstepsize="50" strength="1.15e4" stopsite="1499" protid="4"
initRateConstant="0.14" mrmadeg="2.5e-3" />
<RBS start="1585" stop="1600" startsite="1600" initstepsize="50" strength="1.15e4" stopsite="3600" protid="5"
initRateConstant="0.14" mrmadeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>
```

---

## Tabasco Input File for Traffic Jam with No T7 RNA Polymerase

---

```
<REQUEST>
<EXECUTE-SIMULATION runs="100" random_seed="34206" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="TRAFFIC_JAM">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="0" speed="300" id="2" organism_id="1" footprint="15" name="T7 pol" />
<POLYMERASE n="700" speed="40" id="3" organism_id="2" footprint="15" name="Coli pol" />
<SPECIES name="test-1" n="0" ID="4" organism="1" />
<SPECIES name="test-2" n="0" ID="5" organism="1" />
<REACTIONS>
<REACTION>
4>0;7E-4
</REACTION>
<REACTION>
5>0;7E-4
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="4000" copy_number="1" entry_rate_constant="5000" entry_offsite="3950">
<PROMOTER start="405" stop="428" startsite="423" name="A1" organism_id="2">
<POLYMERASE polymeraseID="3" aon="1.5e7" aoff="0.28" ainiton="0.2" runoff_percent="100" aelong="6" arecyc="0" />
</PROMOTER>
```

```

<PROMOTER start="1505" stop="1528" startsite="1523" name="phi10" organism_id="1">
  <POLYMERASE polymeraseID="2" aon="1.26e8" aoff="0.2" ainiton="1.2" runoff_percent="70" aelong="5" arecyc="0.7" />
</PROMOTER>
<TERMINATOR start="3900" stop="3910" stopsite="3910" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
<POLYMERASE ID="3" efficiency="0.99" />
</TERMINATOR>
<RBS start="485" stop="500" startsite="500" initstepsize="50" strength="1.15e4" stopsite="1499" protid="4"
initRateConstant="0.14" mrnadeg="2.5e-3" />
<RBS start="1585" stop="1600" startsite="1600" initstepsize="50" strength="1.15e4" stopsite="3600" protid="5"
initRateConstant="0.14" mrnadeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>

```

---

## Tabasco Input File for Traffic Jam with No E. coli RNA polymerase

---

```

<REQUEST>
<EXECUTE-SIMULATION runs="100" random_seed="34206" simulation_name="test-1" time_step="50" time_end="25000"
min_num_for_init_output="1">
<CELL volume="1E-15" growth_rate="0" polymerase_interaction_model="TRAFFIC_JAM">
<RIBOSOME initial_number="10000" speed="40" footprint="35" />
<POLYMERASE n="700" speed="300" id="2" organism_id="1" footprint="15" name="T7 pol" />
<POLYMERASE n="0" speed="40" id="3" organism_id="2" footprint="15" name="Coli pol" />
<SPECIES name="test-1" n="0" ID="4" organism="1" />
<SPECIES name="test-2" n="0" ID="5" organism="1" />
<REACTIONS>
<REACTION>
4>0;7E-4
</REACTION>
<REACTION>
5>0;7E-4
</REACTION>
</REACTIONS>
<DNA_SYSTEM name="phage1" genome_length="4000" copy_number="1" entry_rate_constant="5000" entry_offsite="3950">
<PROMOTER start="405" stop="428" startsite="423" name="A1" organism_id="2">
  <POLYMERASE polymeraseID="3" aon="1.5e7" aoff="0.28" ainiton="0.2" runoff_percent="100" aelong="6" arecyc="0" />
</PROMOTER>
<PROMOTER start="1505" stop="1528" startsite="1523" name="phi10" organism_id="1">
  <POLYMERASE polymeraseID="2" aon="1.26e8" aoff="0.2" ainiton="1.2" runoff_percent="70" aelong="5" arecyc="0.7" />
</PROMOTER>
<TERMINATOR start="3900" stop="3910" stopsite="3910" name="TE" organism="2">
<POLYMERASE ID="2" efficiency="0.99" />
<POLYMERASE ID="3" efficiency="0.99" />
</TERMINATOR>
<RBS start="485" stop="500" startsite="500" initstepsize="50" strength="1.15e4" stopsite="1499" protid="4"
initRateConstant="0.14" mrnadeg="2.5e-3" />
<RBS start="1585" stop="1600" startsite="1600" initstepsize="50" strength="1.15e4" stopsite="3600" protid="5"
initRateConstant="0.14" mrnadeg="2.5e-3" />
</DNA_SYSTEM>
</CELL>
</EXECUTE-SIMULATION>
</REQUEST>

```

---

## 1.3. Input Files for T7 Genome Simulation

Tabasco Input File for T7 Gene Expression Simulation:

```

<REQUEST>

```

---

```

<EXECUTE-SIMULATION runs="1" random_seed="34145" simulation_name="test-1" time_step="5" time_end="1500" write_D-
NA="no" write_InitRNA="yes" write_Energy="yes" compDeg="yes">
<CELL volume="8e-16" polymerase_interaction_model="TRAFFIC_JAM">
<RIBOSOME initial_number="10000" speed="45" footprint="40" />
<POLYMERASE n="1800" speed="45" id="2" organism_id="2" footprint="15" name="coli Pol" />
<POLYMERASE n="0" speed="45" id="3" organism_id="2" footprint="15" name="coli Pol-P" />
<POLYMERASE n="0" speed="45" id="4" organism_id="2" footprint="15" name="coli Pol-2.0" />
<POLYMERASE n="0" speed="45" id="5" organism_id="2" footprint="15" name="coli Pol-P-2.0" />
<POLYMERASE n="0" speed="230" id="6" organism_id="1" footprint="15" name="gp1" />
<POLYMERASE n="0" speed="230" id="7" organism_id="1" footprint="15" name="gp1-3.5" />
<SPECIES name="gp0.3" n="0" ID="8" organism="1" />
<SPECIES name="gp0.4" n="0" ID="9" organism="1" />
<SPECIES name="gp0.5" n="0" ID="10" organism="1" />
<SPECIES name="gp0.6A" n="0" ID="11" organism="1" />
<SPECIES name="gp0.7" n="0" ID="12" organism="1" />
<SPECIES name="gp1.1" n="0" ID="13" organism="1" />
<SPECIES name="gp1.2" n="0" ID="14" organism="1" />
<SPECIES name="gp1.3" n="0" ID="15" organism="1" />
<SPECIES name="gp1.4" n="0" ID="16" organism="1" />
<SPECIES name="gp1.5" n="0" ID="17" organism="1" />
<SPECIES name="gp1.6" n="0" ID="18" organism="1" />
<SPECIES name="gp1.7" n="0" ID="19" organism="1" />
<SPECIES name="gp1.8" n="0" ID="20" organism="1" />
<SPECIES name="gp2.0" n="0" ID="21" organism="1" />
<SPECIES name="gp2.5" n="0" ID="22" organism="1" />
<SPECIES name="gp2.8" n="0" ID="23" organism="1" />
<SPECIES name="gp3.0" n="0" ID="24" organism="1" />
<SPECIES name="gp3.5" n="0" ID="25" organism="1" />
<SPECIES name="gp3.8" n="0" ID="26" organism="1" />
<SPECIES name="gp4A" n="0" ID="27" organism="1" />
<SPECIES name="gp4.2" n="0" ID="28" organism="1" />
<SPECIES name="gp4.3" n="0" ID="29" organism="1" />
<SPECIES name="gp4.5" n="0" ID="30" organism="1" />
<SPECIES name="gp4.7" n="0" ID="31" organism="1" />
<SPECIES name="gp5.0" n="0" ID="32" organism="1" />
<SPECIES name="gp5.3" n="0" ID="33" organism="1" />
<SPECIES name="gp5.5" n="0" ID="34" organism="1" />
<SPECIES name="gp5.7" n="0" ID="35" organism="1" />
<SPECIES name="gp5.9" n="0" ID="36" organism="1" />
<SPECIES name="gp6.0" n="0" ID="37" organism="1" />
<SPECIES name="gp6.3" n="0" ID="38" organism="1" />
<SPECIES name="gp6.5" n="0" ID="39" organism="1" />
<SPECIES name="gp6.7" n="0" ID="40" organism="1" />
<SPECIES name="gp7" n="0" ID="41" organism="1" />
<SPECIES name="gp7.3" n="0" ID="42" organism="1" />
<SPECIES name="gp7.7" n="0" ID="43" organism="1" />
<SPECIES name="gp8" n="0" ID="44" organism="1" />
<SPECIES name="gp9" n="0" ID="45" organism="1" />
<SPECIES name="gp10A" n="0" ID="46" organism="1" />
<SPECIES name="gp11" n="0" ID="47" organism="1" />
<SPECIES name="gp12" n="0" ID="48" organism="1" />
<SPECIES name="gp13" n="0" ID="49" organism="1" />
<SPECIES name="gp14" n="0" ID="50" organism="1" />
<SPECIES name="gp15" n="0" ID="51" organism="1" />
<SPECIES name="gp16" n="0" ID="52" organism="1" />
<SPECIES name="gp17" n="0" ID="53" organism="1" />
<SPECIES name="gp17.5" n="0" ID="54" organism="1" />
<SPECIES name="gp18" n="0" ID="55" organism="1" />
<SPECIES name="gp18.5" n="0" ID="56" organism="1" />
<SPECIES name="gp19" n="0" ID="57" organism="1" />
<SPECIES name="gp19.5" n="0" ID="58" organism="1" />
<REACTIONS>
<REACTION>
12+2>3+11;3.8E7
</REACTION>
<REACTION>
12+4>5+11;3.8E7
</REACTION>
<REACTION>
21+2>4;3.8E7
</REACTION>
<REACTION>

```

21+3>5;3.8E7  
 </REACTION>  
 <REACTION>  
 4>21+2;1.1  
 </REACTION>  
 <REACTION>  
 5>21+3;1.1  
 </REACTION>  
 <REACTION>  
 25+6>7;3.8E7  
 </REACTION>  
 <REACTION>  
 7>6+25;3.5  
 </REACTION>  
 </REACTIONS>  
 <DNA\_SYSTEM name="phage1" genome\_length="39937" copy\_number="3" entry\_rate\_constant="70" entry\_offsite="850">  
 <PROMOTER start="405" stop="428" startsite="423" name="phi0L" organism\_id="1">  
 <POLYMERASE polymeraseID="6" aon="1.82e8" aoff="0.2" ainiton="3.5" runoff\_percent="50" aelong="5.8" arecyc="0.88" />  
 <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff\_percent="18" aelong="1.45" arecyc="0.22" />  
 </PROMOTER>  
 <PROMOTER start="498" stop="548" startsite="542" name="A1" organism\_id="2">  
 <POLYMERASE polymeraseID="2" aon="1.5e7" aoff=".28" ainiton="0.4" runoff\_percent="100" aelong="6" arecyc="0"/>  
 <POLYMERASE polymeraseID="3" aon="1.5e7" aoff=".28" ainiton="0.4" runoff\_percent="70" aelong="6" arecyc="0.19"/>  
 <POLYMERASE polymeraseID="4" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
 <POLYMERASE polymeraseID="5" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
 </PROMOTER>  
 <PROMOTER start="626" stop="676" startsite="670" name="A2" organism\_id="2">  
 <POLYMERASE polymeraseID="2" aon="1.5e7" aoff=".28" ainiton="0.4" runoff\_percent="100" aelong="6" arecyc="0"/>  
 <POLYMERASE polymeraseID="3" aon="1.5e7" aoff=".28" ainiton="0.4" runoff\_percent="70" aelong="6" arecyc="0.19"/>  
 <POLYMERASE polymeraseID="4" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
 <POLYMERASE polymeraseID="5" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
 </PROMOTER>  
 <PROMOTER start="750" stop="800" startsite="794" name="A3" organism\_id="2">  
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 <POLYMERASE polymeraseID="4" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
 <POLYMERASE polymeraseID="5" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
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 <POLYMERASE polymeraseID="3" aon="1.5e7" aoff="2.8" ainiton="0.19" runoff\_percent="70" aelong="6" arecyc="0.19"/>  
 <POLYMERASE polymeraseID="4" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
 <POLYMERASE polymeraseID="5" aon="0" aoff="0" ainiton="0" runoff\_percent="0" aelong="0" arecyc="0"/>  
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 <POLYMERASE polymeraseID="7" aon="6e7" aoff="18" ainiton="0.875" runoff\_percent="18" aelong="1.45" arecyc="0.22" />  
 </PROMOTER>  
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 <POLYMERASE polymeraseID="6" aon="1.82e8" aoff="0.2" ainiton="3.5" runoff\_percent="50" aelong="5.8" arecyc="0.88" />  
 <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff\_percent="18" aelong="1.45" arecyc="0.22" />  
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 <POLYMERASE polymeraseID="7" aon="6e7" aoff="18" ainiton="0.875" runoff\_percent="18" aelong="1.45" arecyc="0.22" />  
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arecyc="0.88" />
        <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff_percent="18" aelong="1.45"
arecyc="0.22" />
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arecyc="0.88" />
        <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff_percent="18" aelong="1.45"
arecyc="0.22" />
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        <POLYMERASE polymeraseID="7" aon="6e7" aoff="18" ainiton="0.875" runoff_percent="18" aelong="1.45"
arecyc="0.22" />
</PROMOTER>
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        <POLYMERASE polymeraseID="7" aon="6e7" aoff="18" ainiton="0.875" runoff_percent="18" aelong="1.45"
arecyc="0.22" />
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arecyc="0.88" />
        <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff_percent="18" aelong="1.45"
arecyc="0.22" />
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        <POLYMERASE polymeraseID="7" aon="6e7" aoff="18" ainiton="0.875" runoff_percent="18" aelong="1.45"
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arecyc="0.88" />
        <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff_percent="42" aelong="1.45"
arecyc="0.22" />
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arecyc="0.88" />
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arecyc="0.22" />
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arecyc="0.88" />
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arecyc="0.22" />
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arecyc="0.88" />
        <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff_percent="42" aelong="1.45"
arecyc="0.22" />
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arecyc="0.88" />
        <POLYMERASE polymeraseID="7" aon="1.82e8" aoff="0.2" ainiton="0.875" runoff_percent="42" aelong="1.45"
arecyc="0.22" />
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