

Module 5: Cell fate decisions (model assumptions)

Author: Name

Aim:

- Learn to make implicit model assumptions explicit
- Learn about effect of noise and motility on cell fate decisions

Description:

- Introduce Delta-Notch model and patterning
 - $dX_i/dt = t/(t+aX_j) - X_i + \eta$
 - Spatial patterning: checkerboard
- Assignment 1:
- Introduce tau
 - Time to decision (tau) depends on noise amplitude
 - Tau is important in context of other timed processes (e.g. lateral stabilization)

Paper:

- de Back W, Zhou JX, Brusch L. 2012 On the role of lateral stabilization during early patterning in the pancreas. J R Soc Interface 10: 20120766. [link pdf](#)

Documents:

Morpheus models:

[Link to Example page](#)

h MorpheusModel.xml |h

```
<MorpheusModel version="1">
  <Description>
    <Title>Example-Model</Title>
  </Description>
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    <Lattice class="linear">
      <Size value="100 0 0"/>
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        <Condition boundary="x" type="periodic"/>
      </BoundaryConditions>
    </Lattice>
  </Space>
  <Time>
    <StartTime value="0"/>
    <StopTime value="100"/>
  </Time>
</MorpheusModel>
```

Last
update: 10:37 documentation:course:module5 <https://imc.zih.tu-dresden.de/wiki/morpheus/doku.php?id=documentation:course:module5&rev=1355564279>
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</MorpheusModel>

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