Vasculogenesis_model_A.xml vs. Vasculogenesis_model_B.xml

Vasculogenesis_model_A.xml – /Users/walterdeback/Documents/Teaching

Vasculogenesis_model_B.xml – /Users/walterdeback/Documents/Teaching

```
<CellTypes>
    <CellType class="biological" name="Angioblasts">
        <VolumeConstraint>
            <Strength value="25"/>
            <Target value="90"/>
        </VolumeConstraint>
        <Property symbol="cell" value="1.0" name="cell"/>
        <Property symbol="s" value="2000" name="chemotactic strength"/>
        <ConnectivityConstraint/>
        <Chemotaxis>
            <Layer symbol-ref="u"/>
            <Strength symbol-ref="s"/>
        </Chemotaxis>
    </CellType>
    <CellType class="medium" name="medium">
        <Property symbol="cell" value="0" name="cell"/>
    </CellType>
</CellTypes>
<CPM>
    <Interaction default="0">
        <Contact type1="medium" type2="Angioblasts" value="80"/>
        <Contact type1="Angioblasts" type2="Angioblasts" value="160"/>
    </Interaction>
    <MetropolisKinetics temperature="50" stepper="edgelist">
        <Neighborhood>
            <Order>2</Order>
        </Neighborhood>
    </MetropolisKinetics>
    <MCSDuration value="1.0"/>
</CPM>
<PDE>
    <Layer symbol="u" name="VEGF">
        <Diffusion rate="1e-6" unit="¬µm¬≤/s"/>
    </Layer>
    <System solver="runge-kutta" time-step="1.0">
        <Constant symbol="gamma1" value="1e-3" name="VEGF production"/>
        <Constant symbol="delta" value="1e-3" name="VEGF degradation"/>
        <DiffEqn symbol-ref="u">
            <Expression>cell*gamma1 - (1-cell)*delta*u </Expression>
        </DiffEqn>
    </System>
</PDE>
<CellPopulations>
    <Population size="0" type="Angioblasts">
        <InitRectangle cells="200" type="regular">
            <Dimensions size="200 200 0" origin="0 0 0"/>
        </InitRectangle>
    </Population>
</CellPopulations>
<Analysis>
    <Gnuplotter clean="true" interval="25" timename="false">
        <Terminal opacity="0.65" name="png"/>
        <Cells flooding="true">
            <ColorMap>
                <Color value="1" color="gray"/>
                <Color value="0" color="grey"/>
            </ColorMap>
        </Cells>
        <PDE symbol-ref="u" superimpose="true" isolines="3">
            <ColorMap>
                <Color value="1.0" color="red"/>
                <Color value="0.5" color="yellow"/>
                <Color value="0.0" color="white"/>
```

```
<CellTypes>
    <CellType class="biological" name="Angioblasts">
        <VolumeConstraint>
            <Strength value="25"/>
            <Target value="90"/>
        </VolumeConstraint>
        <Property symbol="cell" value="1.0" name="cell"/>
        <Property symbol="s" value="2000" name="chemotactic strength"/>
        <ConnectivityConstraint/>
        <Chemotaxis>
            <Layer symbol-ref="w"/>
            <Strength symbol-ref="s"/>
        </Chemotaxis>
    </CellType>
    <CellType class="medium" name="medium">
        <Property symbol="cell" value="0" name="cell"/>
    </CellType>
</CellTypes>
<CPM>
    <Interaction default="0">
        <Contact type1="medium" type2="Angioblasts" value="80"/>
        <Contact type1="Angioblasts" type2="Angioblasts" value="160"/>
    </Interaction>
    <MetropolisKinetics temperature="50" stepper="edgelist">
        <Neighborhood>
            <Order>2</Order>
        </Neighborhood>
    </MetropolisKinetics>
    <MCSDuration value="1.0"/>
</CPM>
<PDE>
    <Layer symbol="u" name="VEGF">
        <Diffusion rate="10" unit="¬µm¬≤/s"/>
    </Layer>
    <Layer symbol="v" name="ECM">
        <Diffusion rate="1e-3" unit="¬µm¬≤/s"/>
    </Layer>
    <Layer symbol="w" name="ECM+VEGF">
        <Diffusion rate="1e-3" unit="¬µm¬≤/s"/>
    </Layer>
    <System solver="runge-kutta" time-step="1.0">
        <Constant symbol="gamma1" value="1e-3" name="VEGF production"/>
        <Constant symbol="gamma2" value="1e-3" name="ECM production"/>
        <Constant symbol="alpha" value="1e-1" name="VEGF+ECM binding"/>
        <Constant symbol="delta" value="1e-2" name="VEGF degradation"/>
        <DiffEqn symbol-ref="u">
            <Expression>gamma1 - delta*u - alpha*u*v </Expression>
        </DiffEqn>
        <DiffEqn symbol-ref="v">
            <Expression>gamma2*cell - alpha*u*v</Expression>
        </DiffEqn>
        <DiffEqn symbol-ref="w">
            <Expression>alpha*u*v</Expression>
        </DiffEqn>
    </System>
</PDE>
<CellPopulations>
    <Population size="0" type="Angioblasts">
        <InitRectangle cells="200" type="regular">
            <Dimensions size="200 200 0" origin="0 0 0"/>
        </InitRectangle>
    </Population>
</CellPopulations>
```

status: 8 differences

Actions