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| --- | --- | --- | --- |
| **Parameter** | **Value** | **Unit** | **Parameterisation** |
| Cell Mass   | 1.0 e-10 |   | Here we approximate the density of a cell with three times the density of water and assume a radius of   |
| Intrinsic speed   | 5.0 e-8 |     | Measured previously (SI Text reference [8]). |
| Domain Width   | 217 e-6 |   | Approximated from experimental data. |
| Domain Height   | 850 e-6 |   | Approximated from experimental data. |
| Chemotaxis Clock CoA rate | 0.5 |   | Chosen from sensitivity analysis: 1/(CoA rate) < 20  |
| Boundary Clock rate | 0.1 |   | Chosen from sensitivity analysis: 1/( rate)<100 |
| Diffusion Length  | 0.00011 |   | Curve fit of stable gradient (SI Text reference [6]). |
| Constant of proportionality   | 1 |   | Models sensitivity to changes in co-attractant concentration. |
| Stiffness   | 0.112 |   | Calculated from material parameters; Assuming incompressibility and Poisson’s ratio of 0.5 and a Young’s modulus of 40 Pa (SI Text reference [2]). |
| Restitution  | 2.199 | ND | Approximated from (SI Text reference [3]). |
| Time step   | 1.0 e-3 |   | Calculated from the mass and normal stiffness. |
| Number Of Cells   | 50 | ND | Approximate number of cells in an experiment. |
| Contact adaption coefficient   | 0.003 |   | Experimental fit to data see figure S2g-i. |
| Migratory adaption coefficient   | 1 |  | Flexible parameter that can be adjusted to fit experimental data. |
| Rotational Turning Clock $RT rate$ | 0.003 |  | Chosen from sensitivity analysis: 3<1/(RT rate)  |
| Cell Radius   | 20 e-6 |   | Inspection of experimental data. |
| Coherence   | 0.5568 | ND | Control experimental value compared with the discrete element model under conditions with and without co-attraction in the model. |