

Supporting Information

(10 pages)

Title: Network of Receptors Characterize B Cell Receptor Macro- and Micro- Clustering in a Monte Carlo Model

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Figure S1: Snapshots of the receptor molecules at the regular time intervals (1×10^7 time steps) of the clustering simulations for $N=100$; $L=30$; $T=10^8$ considering four neighboring nodes.

Figure S2a: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=1$; $T=10^8$ considering four neighboring nodes.

Figure S2b: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 500 for $L=30$; $K=2$; $T=10^8$ considering four neighboring nodes.

Figure S2c: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 500 for $L=30$; $K=3$; $T=10^8$ considering four neighboring nodes.

Figure S3: Snapshots of the macro clusters formed due to biased diffusion toward the largest cluster receptors for various sets of receptor concentrations from 100 to 500 for $L=30$; $K=4$; $T=10^8$ considering four neighboring nodes.

Figure S4a: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=1$; $T=10^8$ considering eight neighboring nodes.

Figure S4b: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=2$; $T=10^8$ considering eight neighboring nodes.

Figure S4c: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=3$; $T=10^8$ considering eight neighboring nodes.

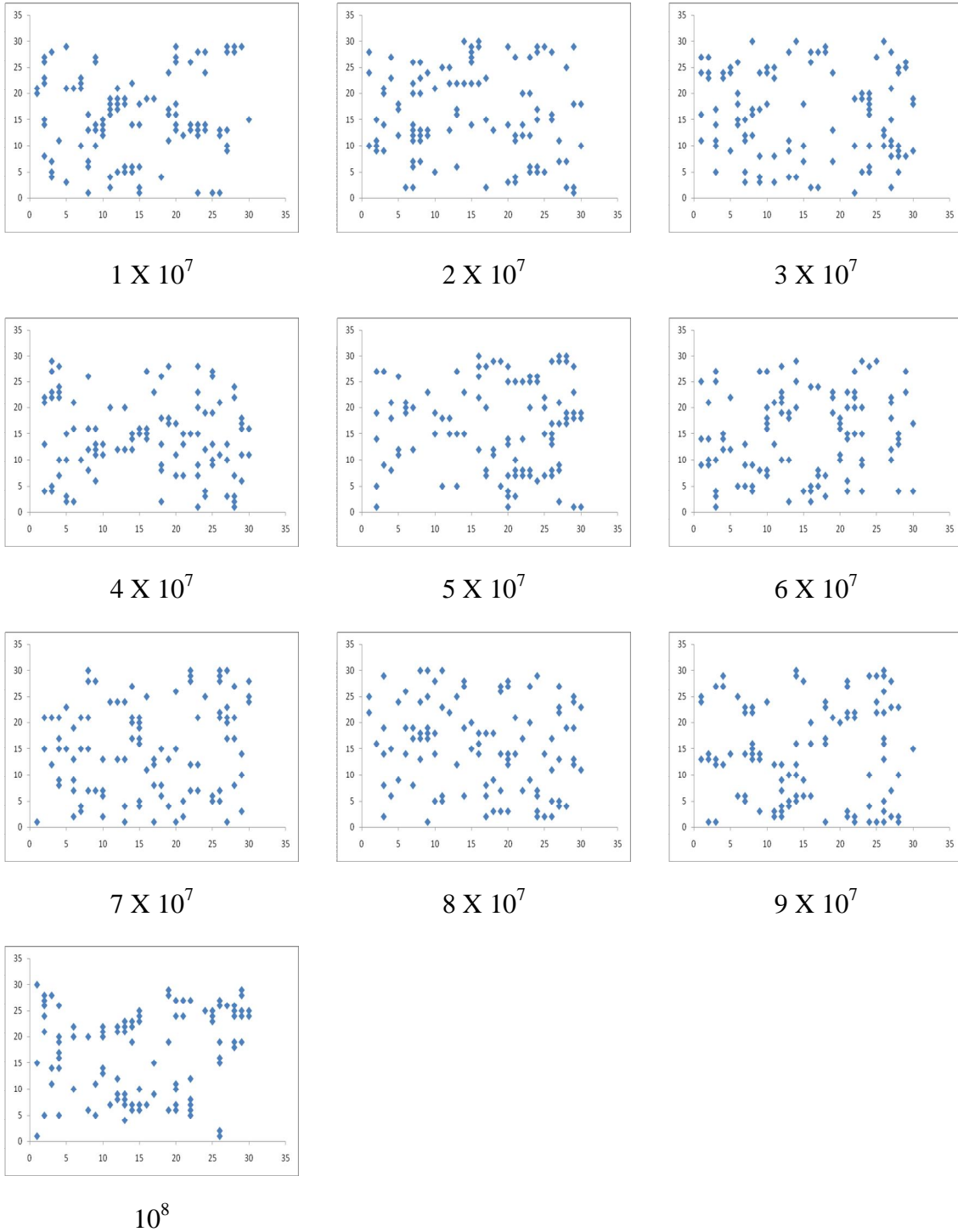
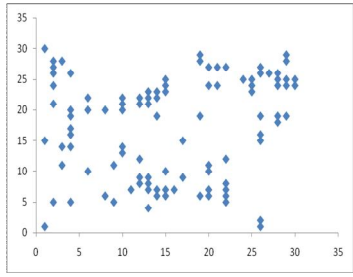
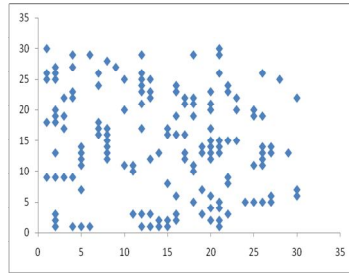


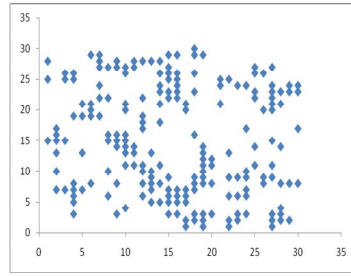
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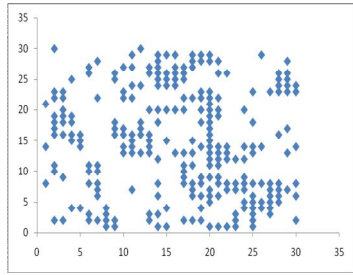
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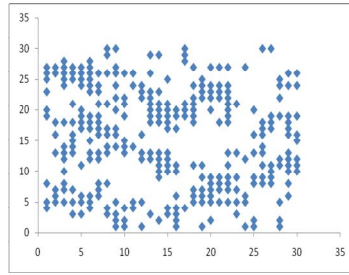
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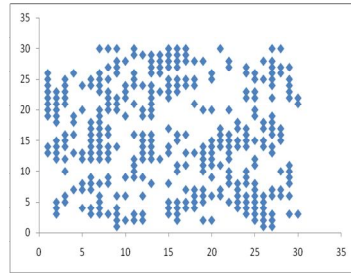
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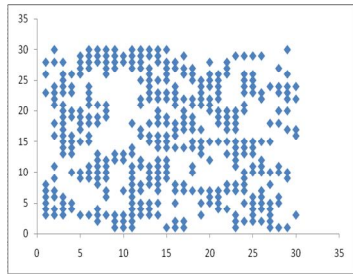
N=250



N=300



N=350



N=400

Figure S2a: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=1$; $T=10^8$ considering four neighboring nodes.

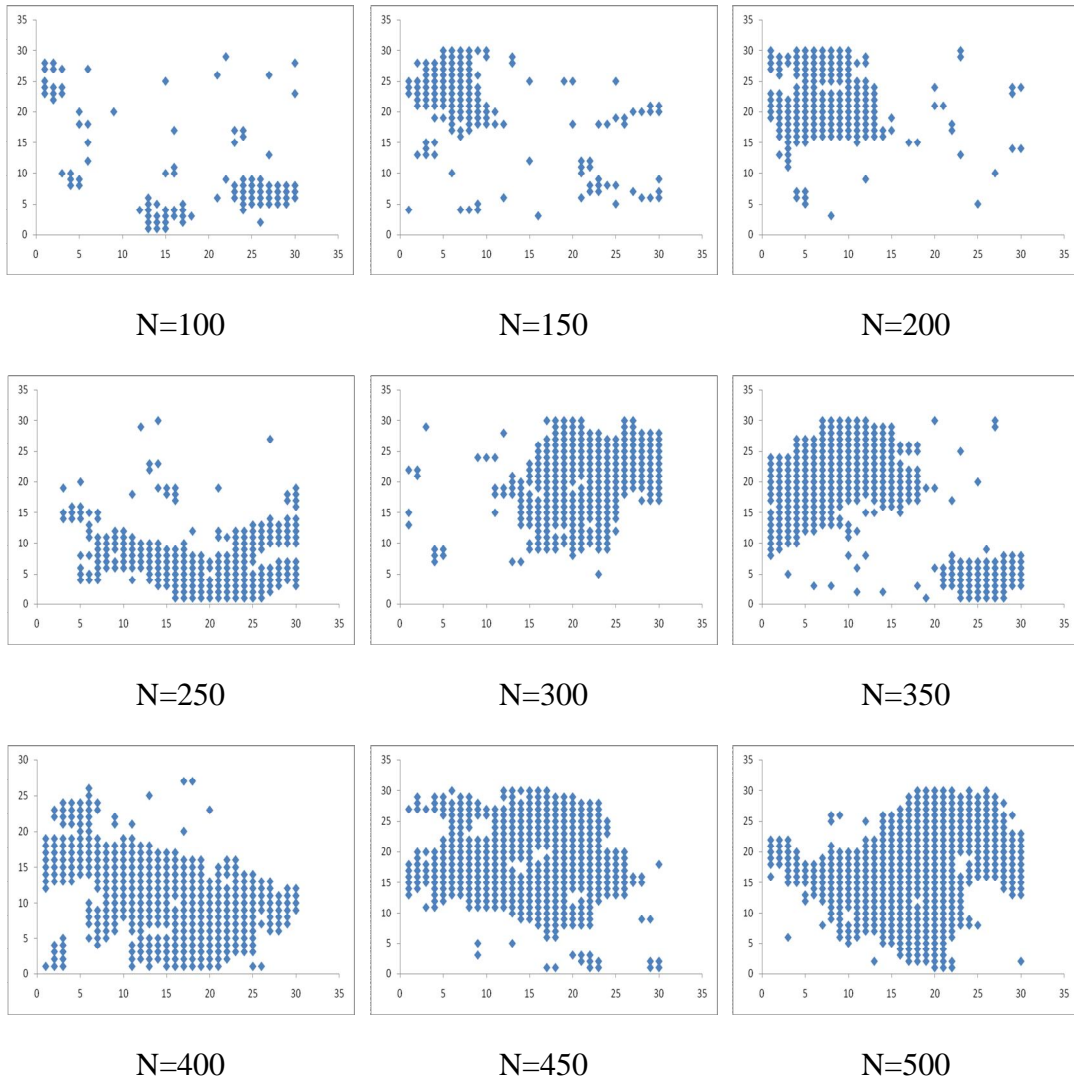


Figure S2b: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 500 for $L=30$; $K=2$; $T=10^8$ considering four neighboring nodes.

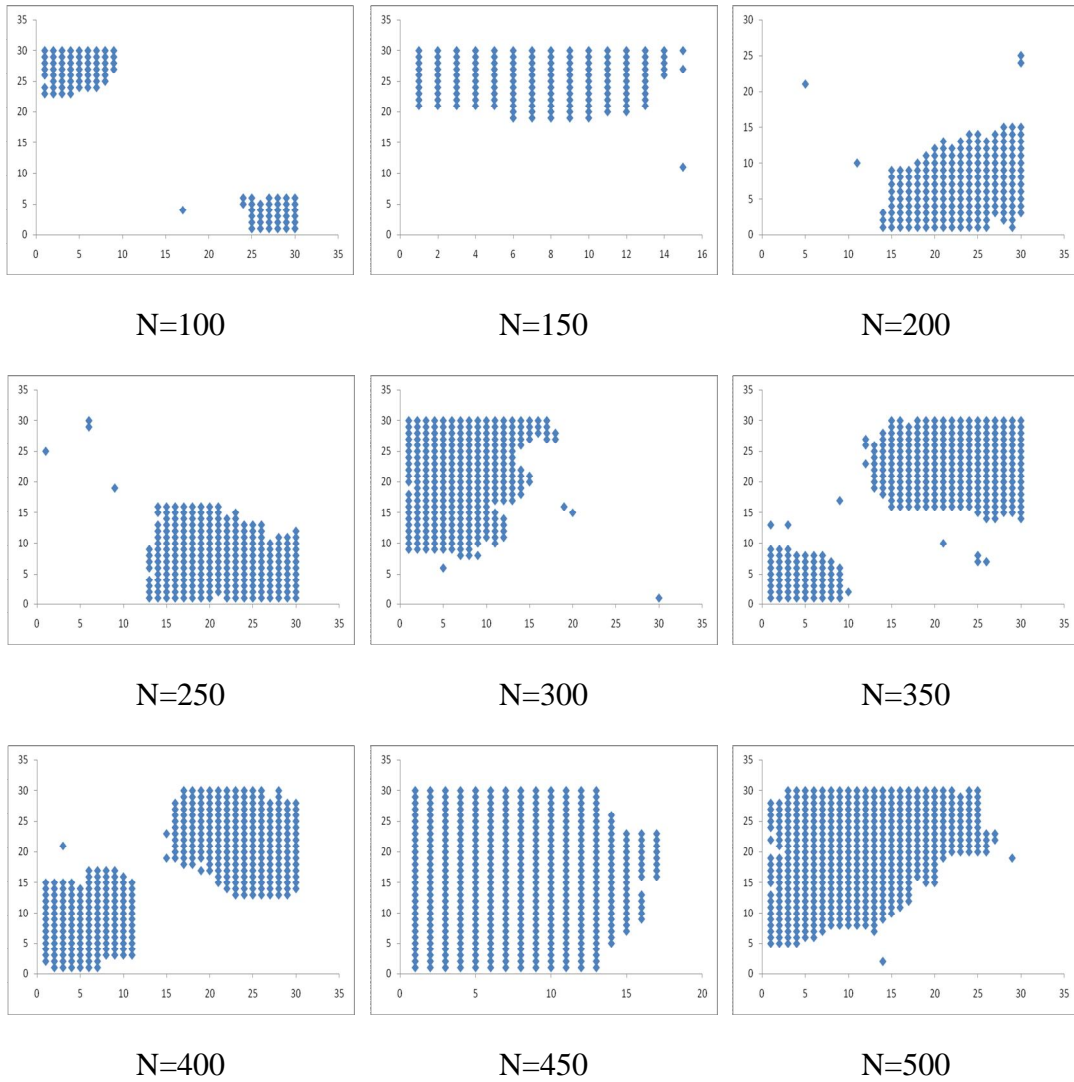


Figure S2c: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 500 for $L=30$; $K=3$; $T=10^8$ considering four neighboring nodes.

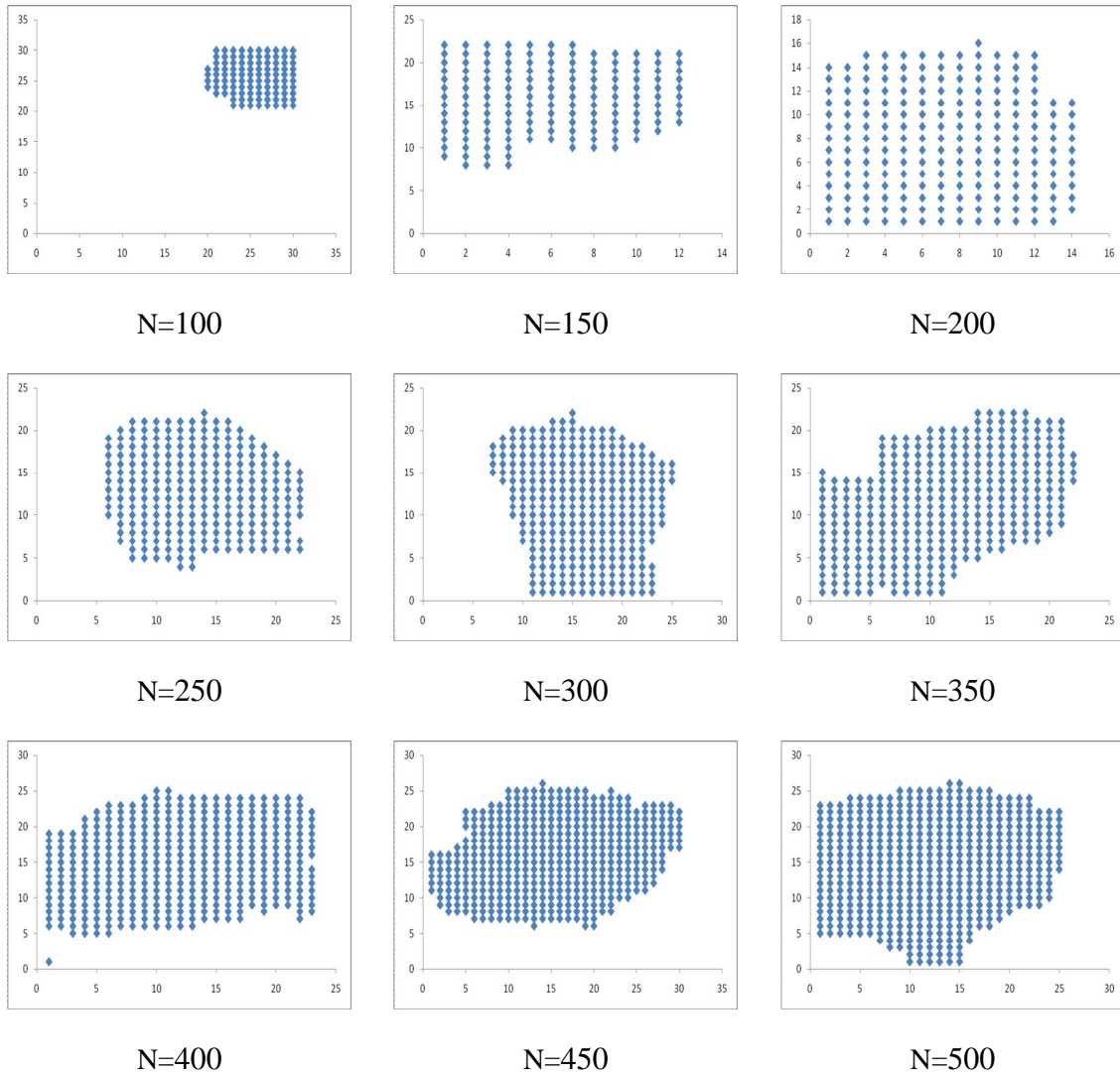


Figure S3: Snapshots of the macro clusters formed due to biased diffusion toward the largest cluster receptors for various sets of receptor concentrations from 100 to 500 for $L=30$; $K=4$; $T=10^8$ considering four neighboring nodes.

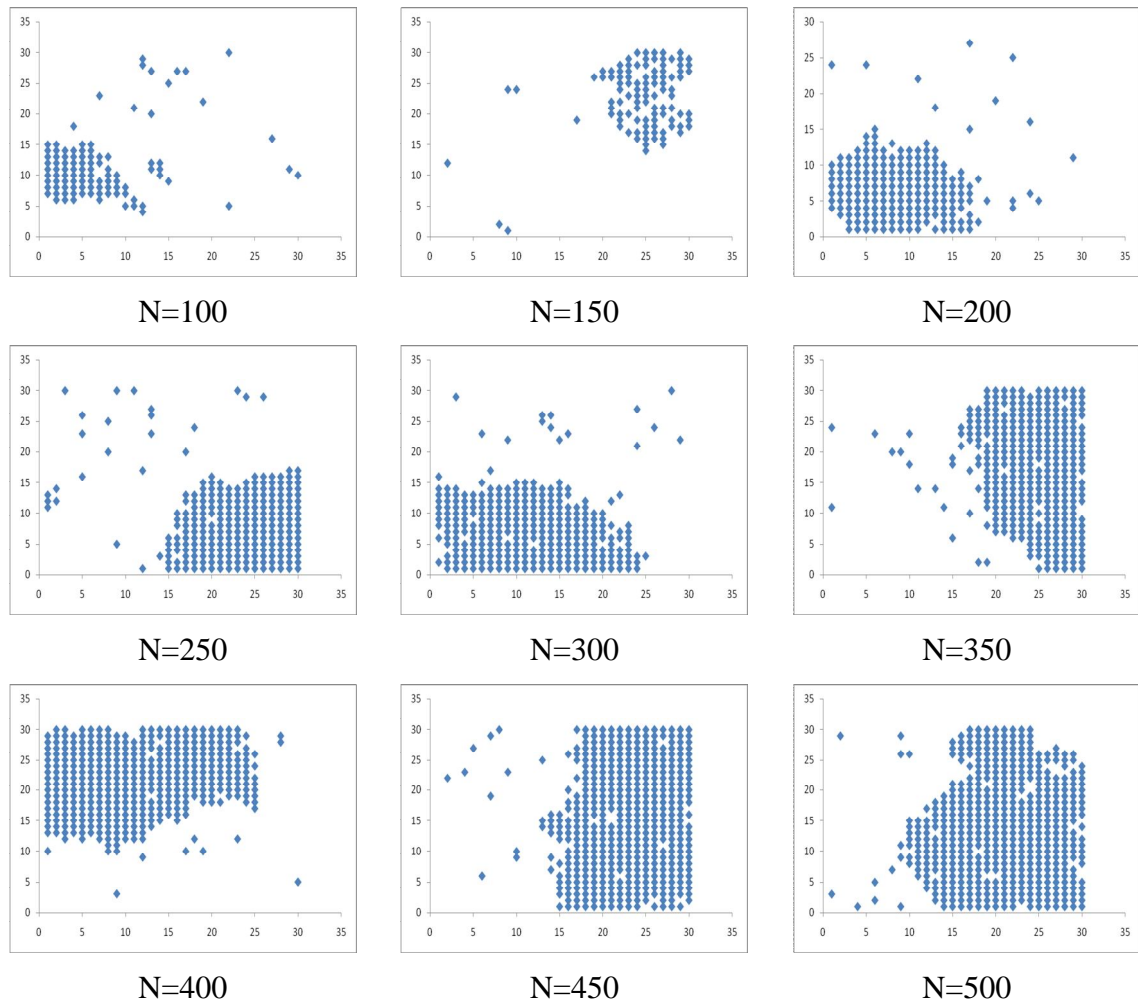
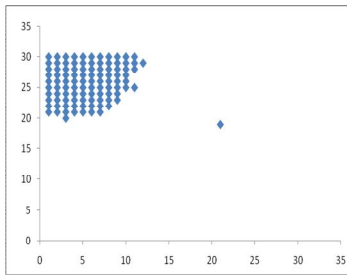
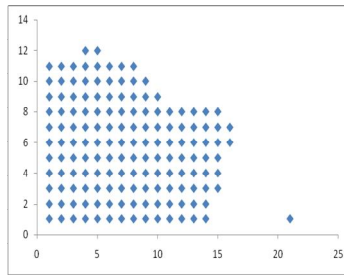


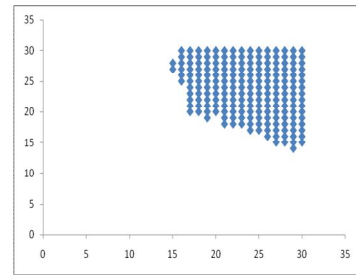
Figure S4a: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=1$; $T=10^8$ considering eight neighboring nodes.



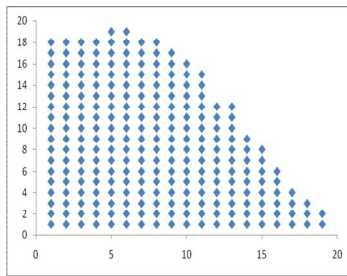
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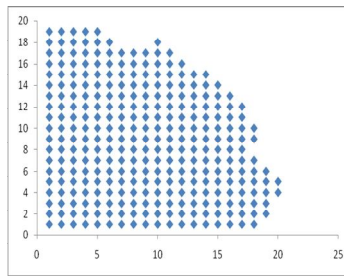
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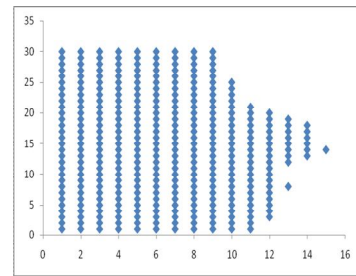
N=200



N=250



N=300



N=350

Figure S4b: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=2$; $T=10^8$ considering eight neighboring nodes.

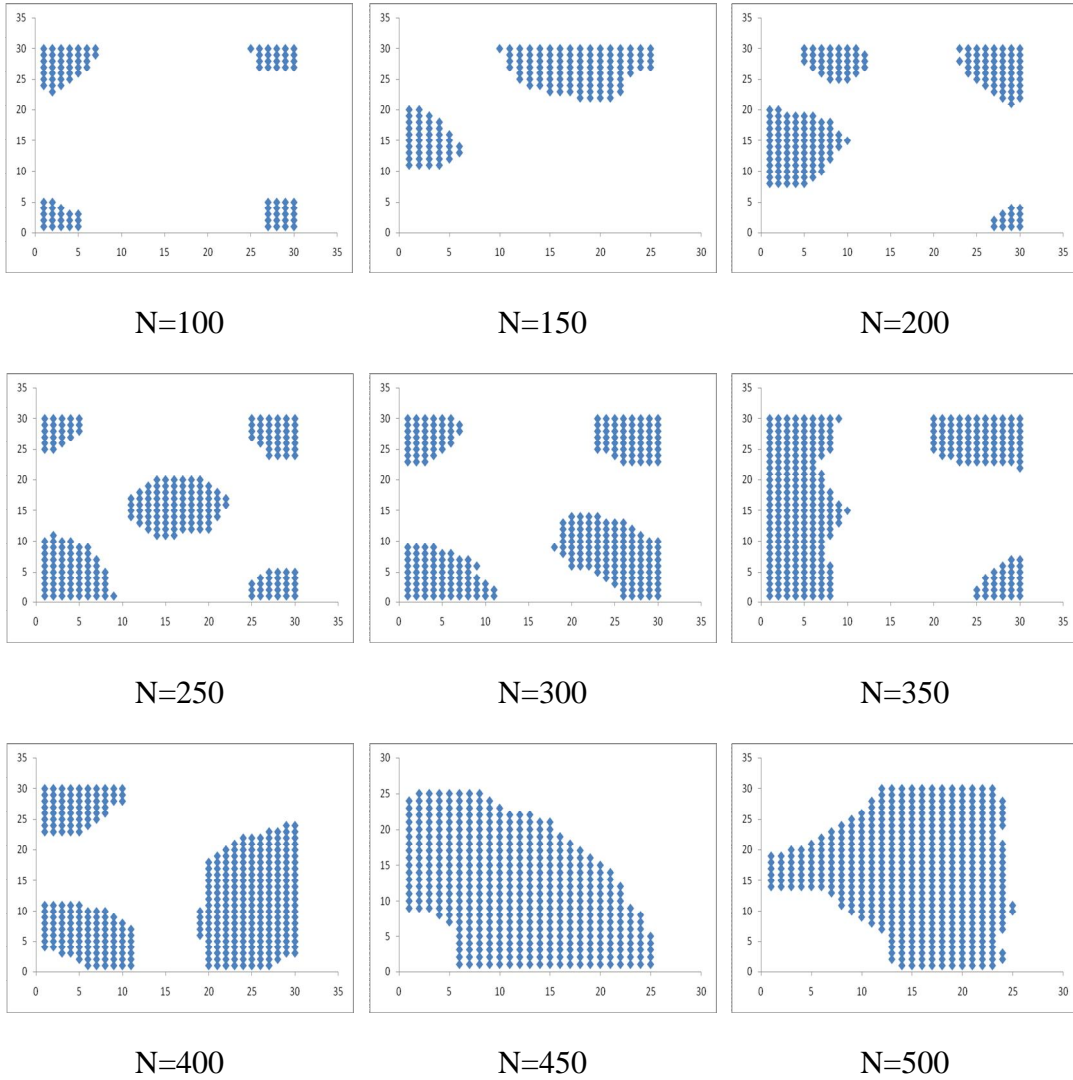


Figure S4c: Snapshots of micro-clustering for various sets of receptor concentrations from 100 to 400 for $L=30$; $K=3$; $T=10^8$ considering eight neighboring nodes.