

1 **Supporting Information (SI)**

2 **Neutrophil Chemotaxis against a Competing Gradient**
3 **of Chemoattractants: Hierarchy and Contribution of**
4 **Each Chemoattractants**

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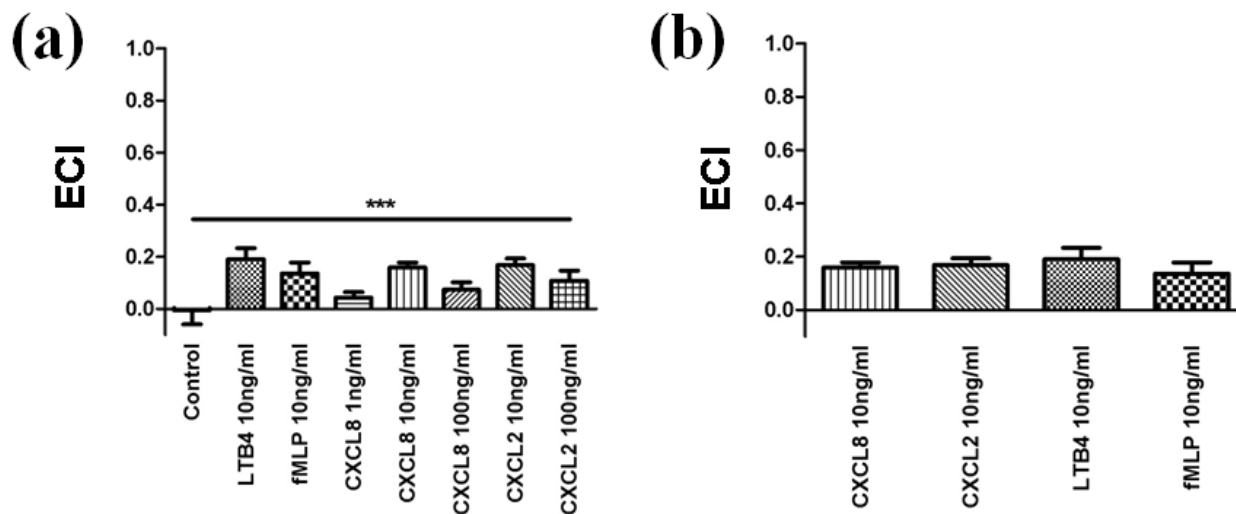
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1 A. Supplemental Figures



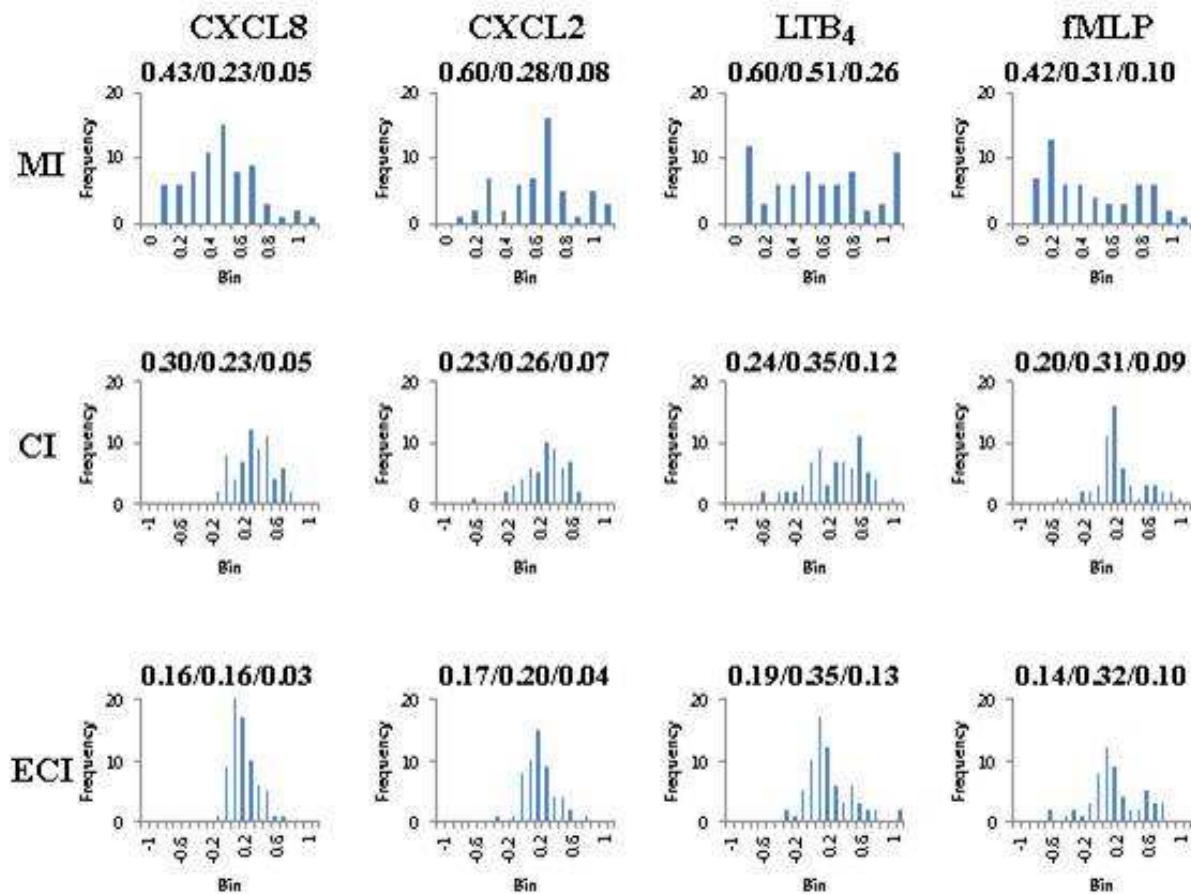
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3 **Figure S-1.** ECIs for different gradients of the four chemoattractants. (a) ECIs for the control and all
4 gradient conditions investigated, (b) ECIs for the 10 ng/mL gradient of the four chemoattractants (***: p
5 < 0.0001 by Kruskal-Wallis test).

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2 **Figure S-2.** Histograms for MIs, CIs, and ECIs from single gradient conditions (numbers above each
 3 histogram represent mean/standard deviation/variance).

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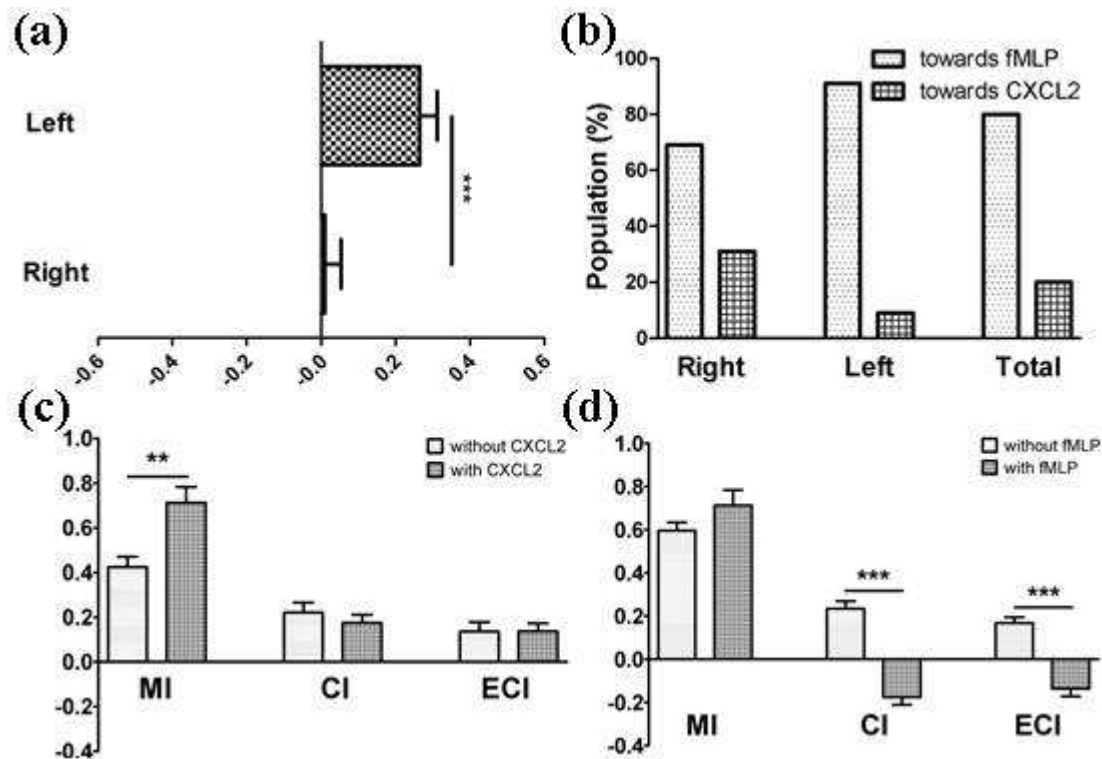
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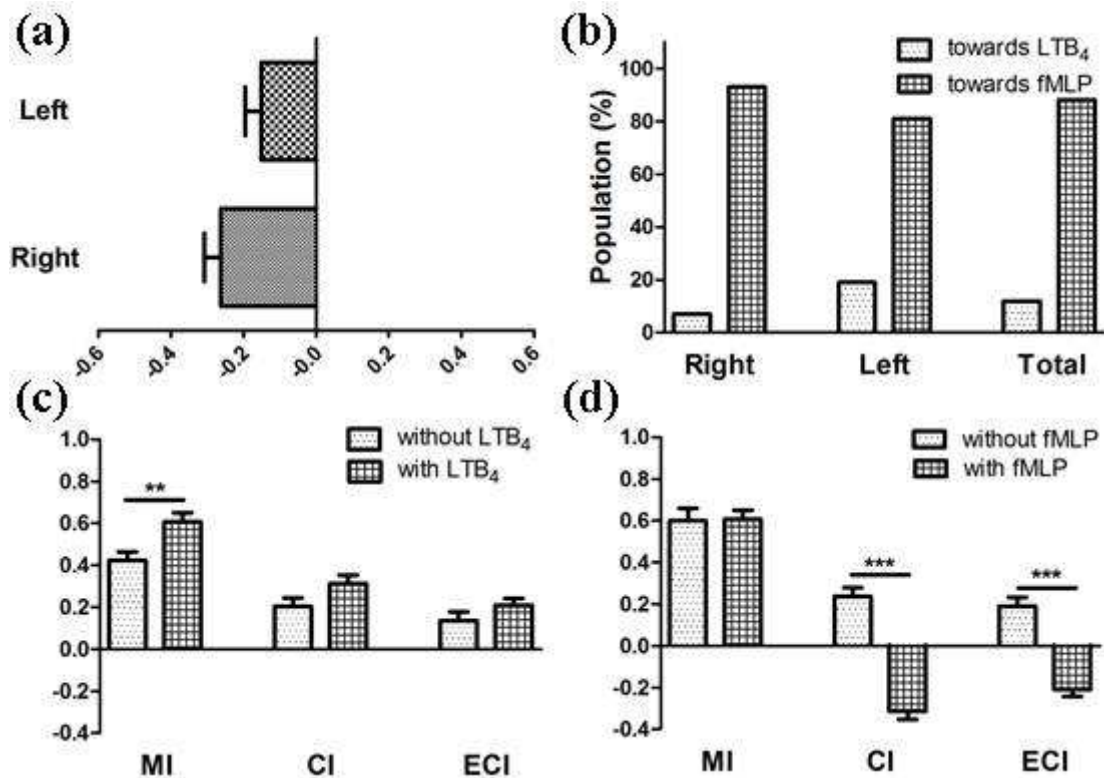
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Figure S-3. Results from CXCL2-fMLP-mediated chemotaxis. (a) ECIs from each side of the channel with $N_{\text{left}} = 30$ and $N_{\text{right}} = 31$ (positive sign indicates that the chemotaxis was toward fMLP while negative sign indicates that the chemotaxis was toward CXCL2), (b) Populations of the cells moving toward a chemoattractant, (c) MI, CI, and ECI comparison to those from fMLP-mediated chemotaxis (positive sign indicates that the chemotaxis was toward fMLP while negative sign indicates that the chemotaxis was toward CXCL2), and (d) MI, CI, and ECI comparison to those from CXCL2-mediated chemotaxis (positive sign indicates that the chemotaxis was toward CXCL2 while negative sign indicates that the chemotaxis was toward fMLP).



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2 **Figure S-4.** Results from LTB₄-fMLP-mediated chemotaxis. (a) ECIs from each side of the channel
 3 with $N_{\text{left}} = 30$ and $N_{\text{right}} = 30$ (positive sign indicates that the chemotaxis was toward LTB₄ while
 4 negative sign indicates that the chemotaxis was toward fMLP), (b) Populations of the cells moving
 5 toward a chemoattractant, (c) MI, CI, and ECI comparison to those from fMLP-mediated chemotaxis
 6 (positive sign indicates that the chemotaxis was toward fMLP while negative sign indicates that the
 7 chemotaxis was toward LTB₄), and (d) MI, CI, and ECI comparison to those from LTB₄-mediated
 8 chemotaxis (positive sign indicates that the chemotaxis was toward LTB₄ while negative sign indicates
 9 that the chemotaxis was toward fMLP).

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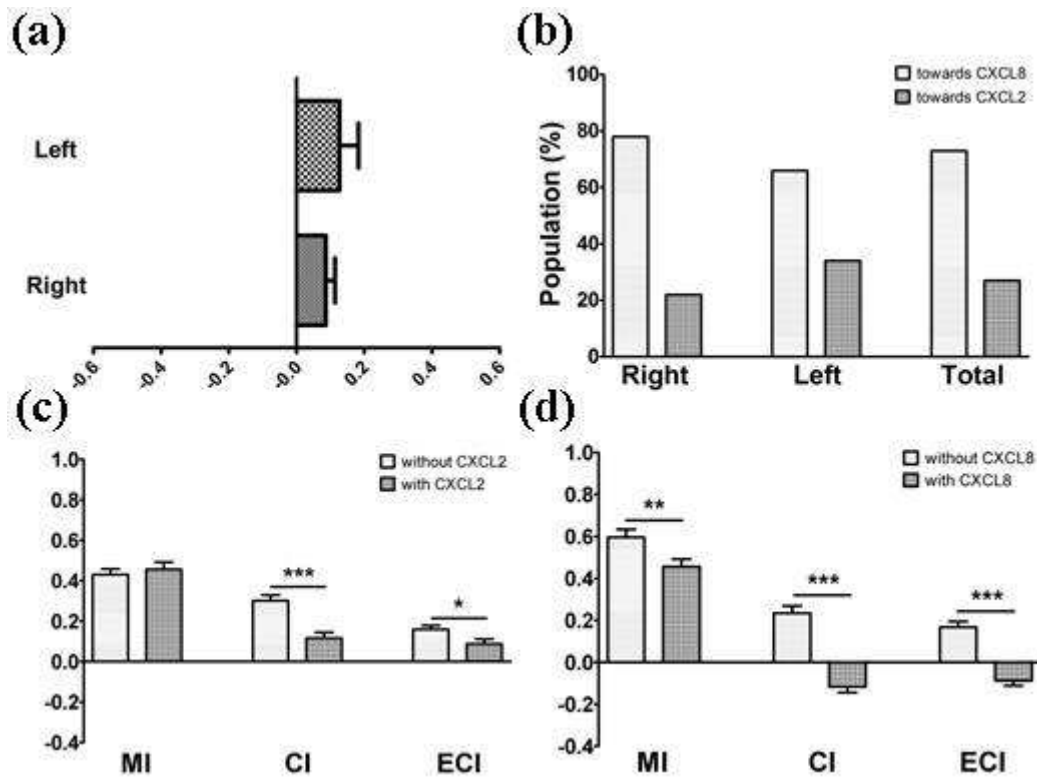
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2 **Figure S-5.** Results from CXCL2-CXCL8-mediated chemotaxis. (a) ECIs from each side of the
 3 channel with $N_{\text{left}} = 35$ and $N_{\text{right}} = 33$ (positive sign indicates that the chemotaxis was toward CXCL8
 4 while negative sign indicates that the chemotaxis was toward CXCL2), (b) Populations of the cells
 5 moving toward a chemoattractant, (c) MI, CI, and EI comparison to those from CXCL8-mediated
 6 chemotaxis (positive sign indicates that the chemotaxis was toward CXCL8 while negative sign
 7 indicates that the chemotaxis was toward CXCL2), and (d) MI, CI, and EI comparison to those from
 8 CXCL2-mediated chemotaxis (positive sign indicates that the chemotaxis was toward CXCL2 while
 9 negative sign indicates that the chemotaxis was toward CXCL8).

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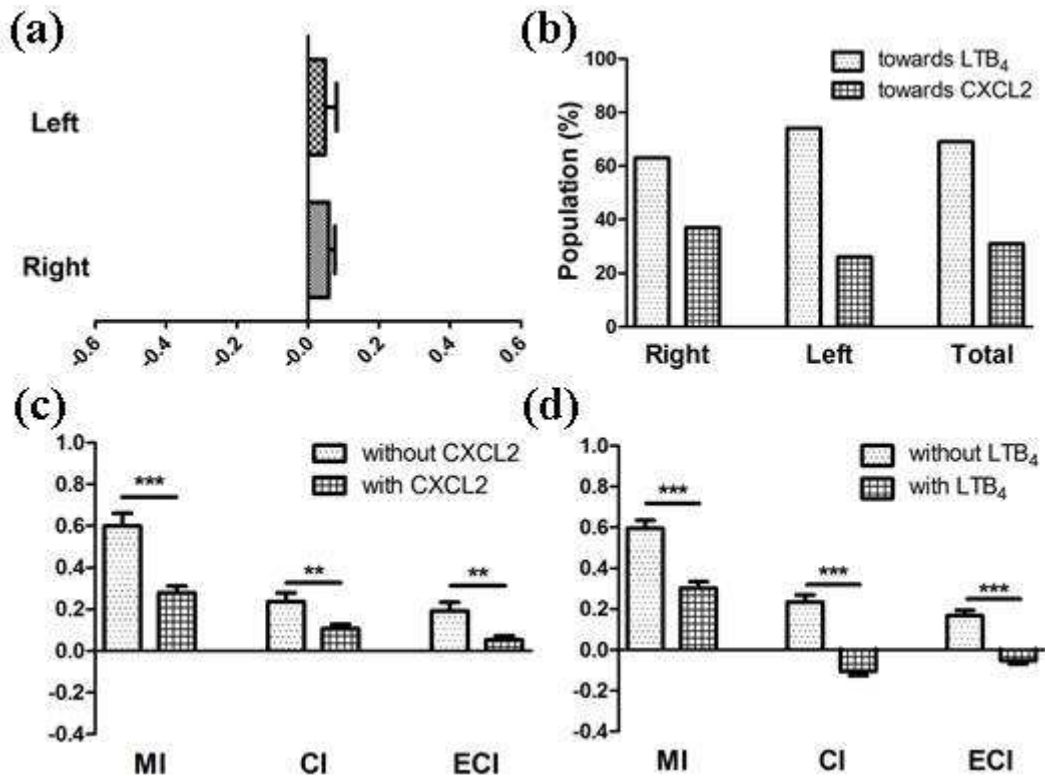
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2 **Figure S-6.** Results from CXCL2-LTB₄-mediated chemotaxis. (a) ECIs from each side of the channel
 3 with $N_{\text{left}} = 30$ and $N_{\text{right}} = 31$ (positive sign indicates that the chemotaxis was toward LTB₄ while
 4 negative sign indicates that the chemotaxis was toward CXCL2), (b) Populations of the cells moving
 5 toward a chemoattractant, (c) MI, CI, and ECI comparison to those from LTB₄-mediated chemotaxis
 6 (positive sign indicates that the chemotaxis was toward LTB₄ while negative sign indicates that the
 7 chemotaxis was toward CXCL2), and (d) MI, CI, and ECI comparison to those from CXCL2-mediated
 8 chemotaxis (positive sign indicates that the chemotaxis was toward CXCL2 while negative sign
 9 indicates that the chemotaxis was toward LTB₄).

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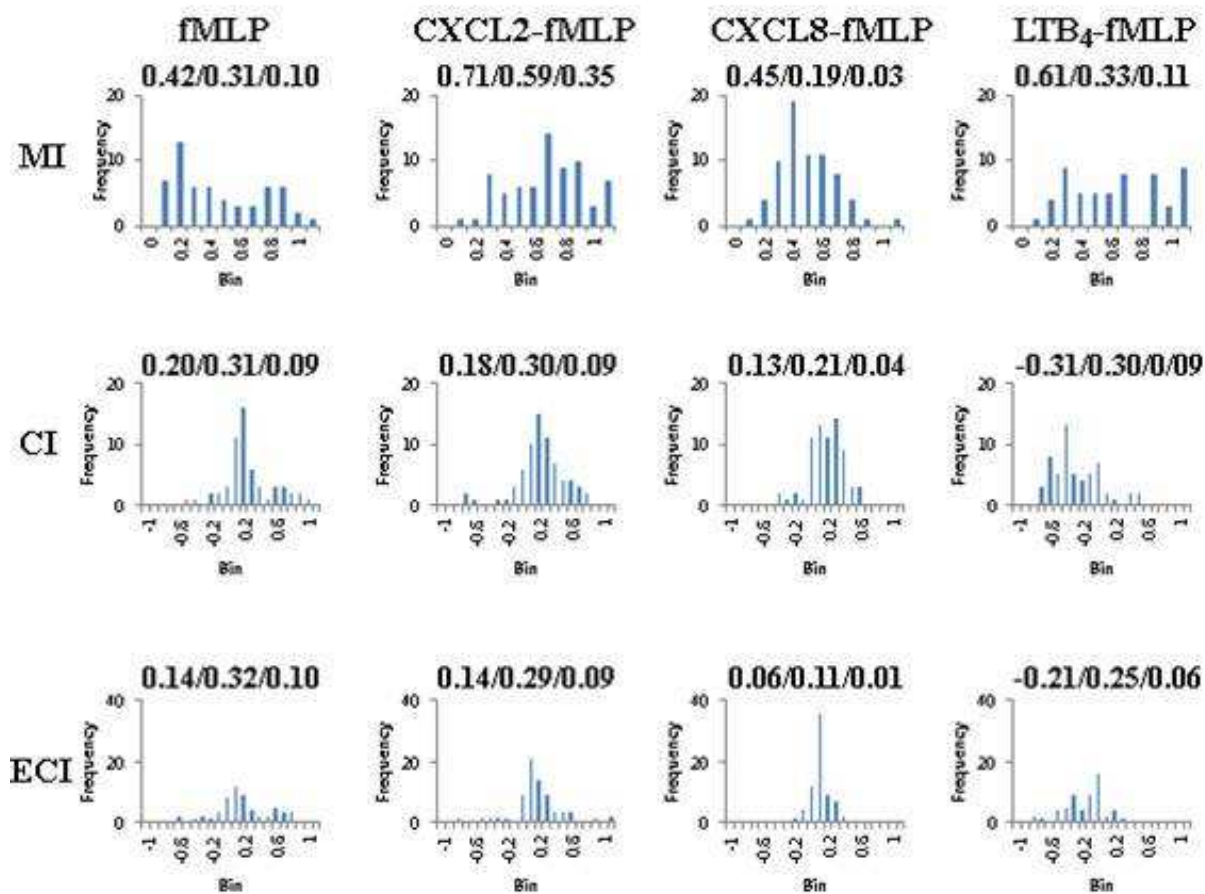
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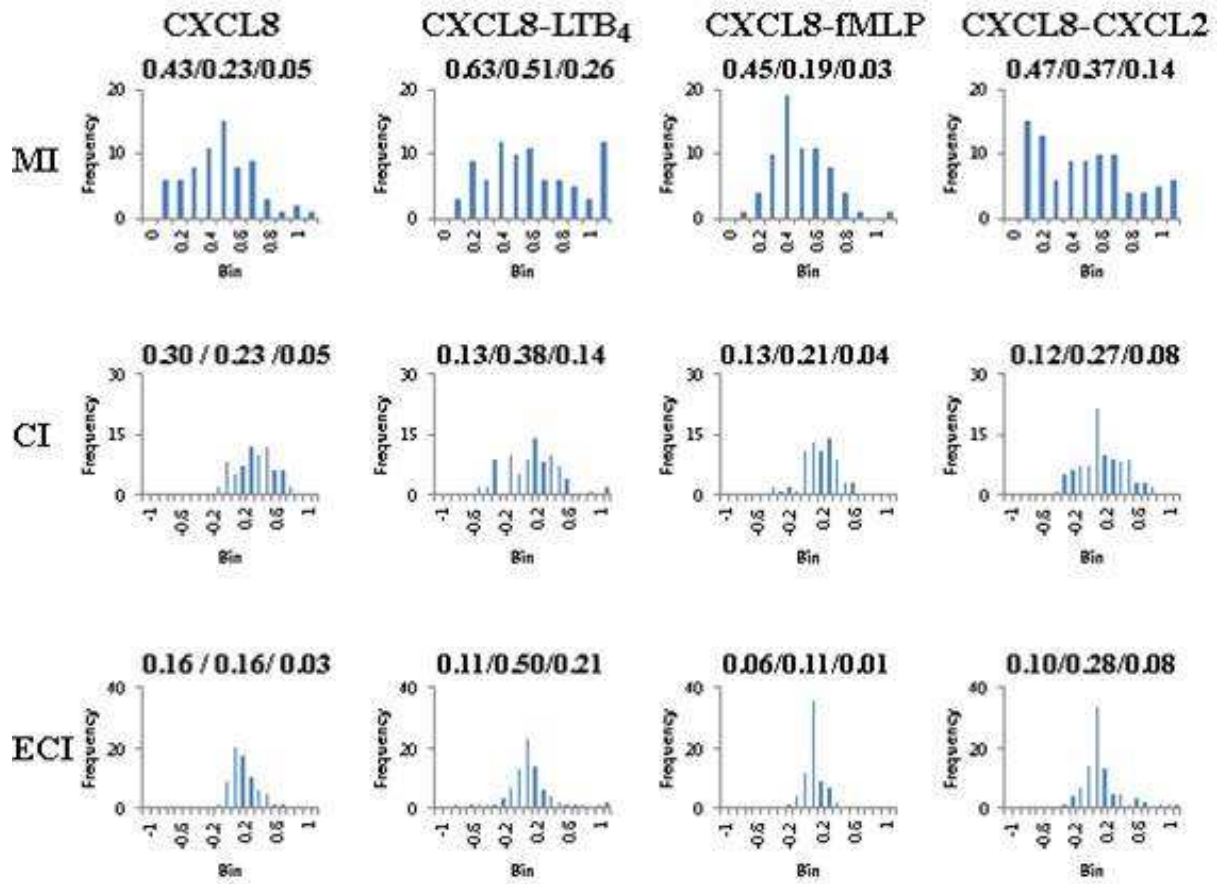
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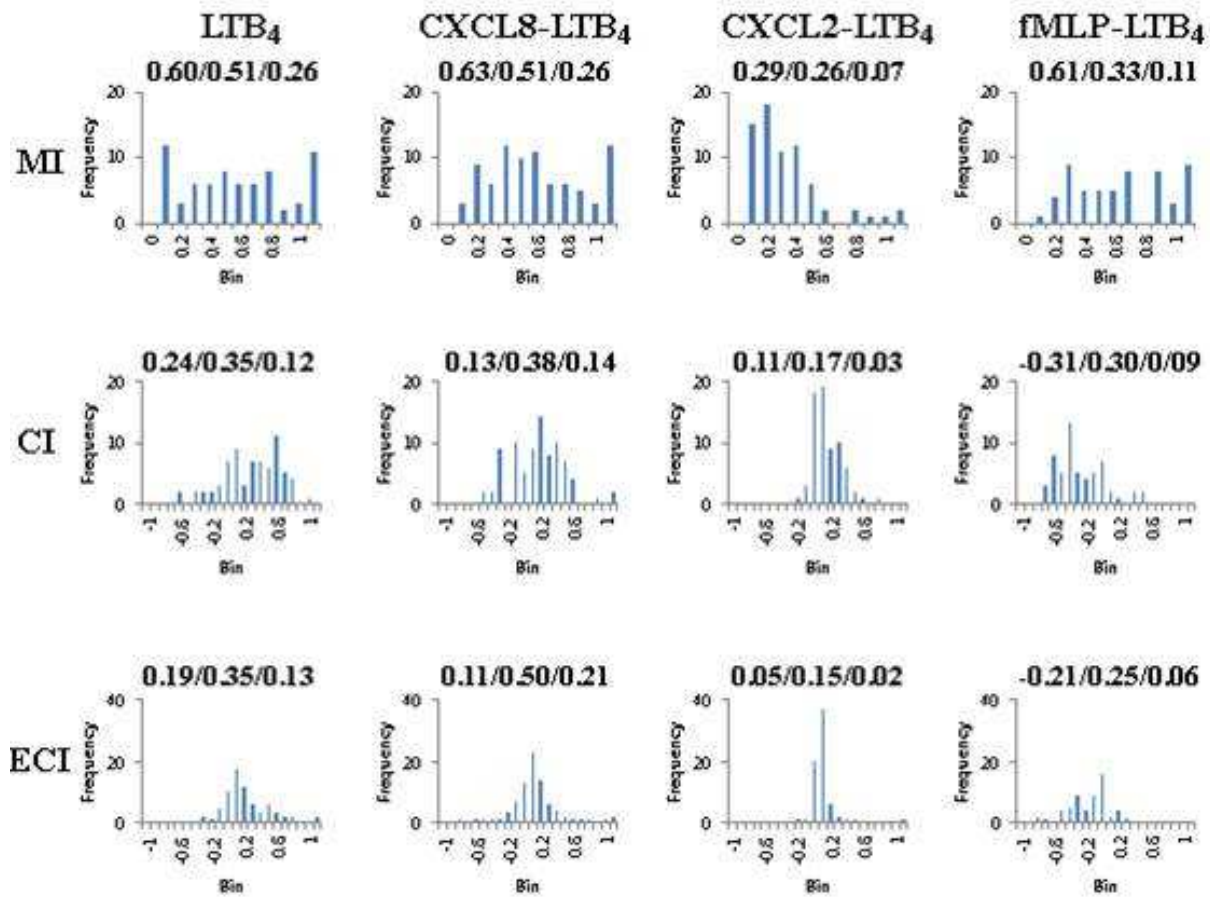
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Figure S-7. Histograms for MIs, CIs, and ECIs from fMLP-containing gradient conditions (numbers above each histogram represent mean/standard deviation/variance).



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Figure S-8. Histograms for MIs, CIs, and ECIs from CXCL8-containing gradient conditions (numbers above each histogram represent mean/standard deviation/variance).



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2 **Figure S-9.** Histograms for MIs, CIs, and ECIs from LTB₄-containing gradient conditions (numbers
 3 above each histogram represent mean/standard deviation/variance).

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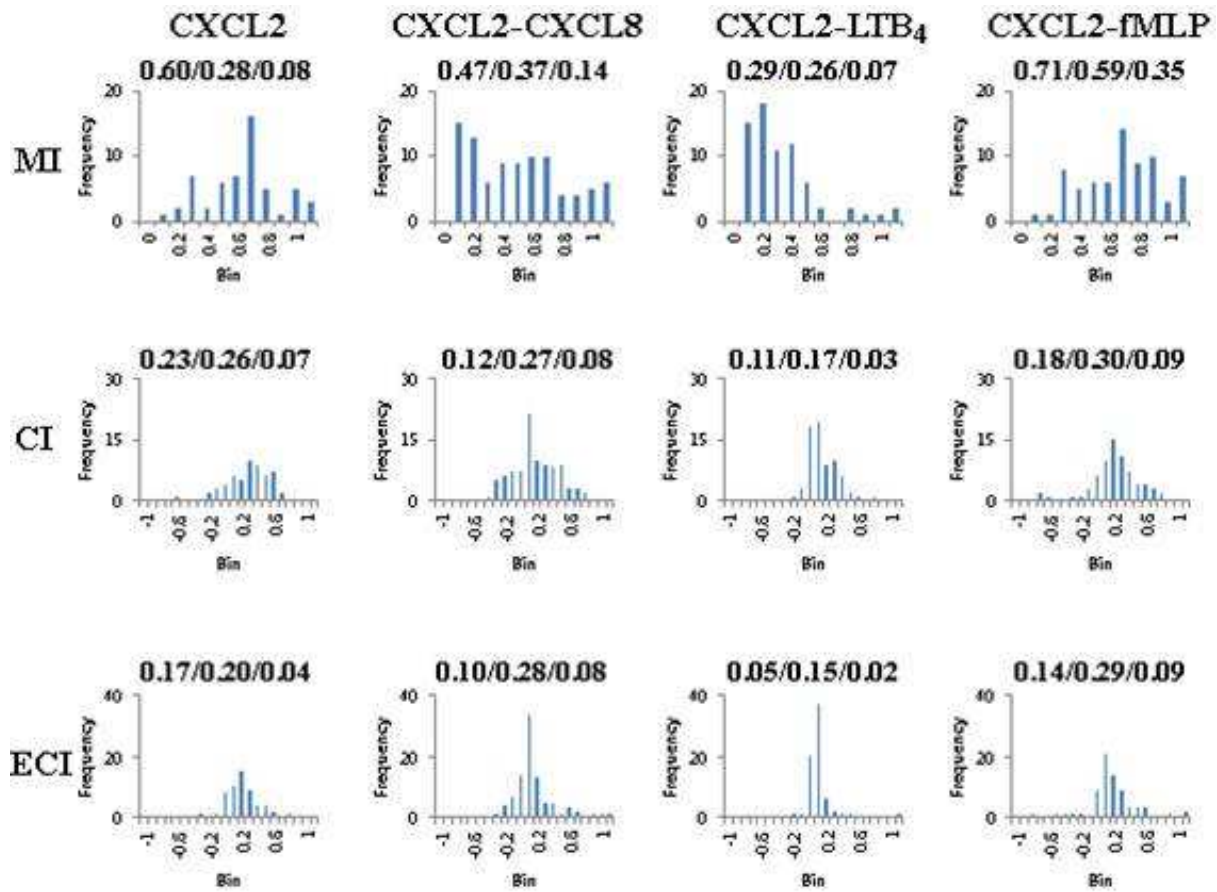
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2 **Figure S-10.** Histograms for MIs, CIs, and ECIs from CXCL2-containing gradient conditions
 3 (numbers above each histogram represent mean/standard deviation/variance).

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