Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

**An Empirical Study of Immune System Based On Bipartite Graphs**[1] YU-JING PENG, SHENG-RONG ZOU, ZHONG-WEI GUO, TA ZHOU, CHANG-GUI GU, DA-REN HE, Yangzhou University — Immune system is the most important defense system to resist human pathogens. We present an immune bipartite graph model. Firstly we collect data through COPE database and then construct an immune cell-mediator network. In the net the immune cells can be regarded as collaboration acts and the mediators can be regarded as collaboration actors. The act degree distribution of this network is proved to be power-law with a scaling exponent 1.8. From our analysis, we found that some mediators with high degree are very important in the process of regulating immune activity, such as TNF-alpha, IL-8, TNF-alpha receptors, CCL5, IL-6, IL-2 receptors, TNF-beta receptors, TNF-beta, IL-4 receptors, IL-1 beta, CD54 and so on. We also found that the assortativity coefficient of the immune network is -0.27.

[1]supported by Chinese National Natural Science Foundation, No. 10635040 and 70671089

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Date submitted: 24 Nov 2007 Electronic form version 1.4