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Kang-Ling Liao* (liao.92@osu.edu), 376 Jennings Hall, 1735 Neil Ave., Columbus, OH 43202, and **Avner Friedman** and **Xue-Feng Bai**. *The contradictory experimental results of CD200-CD200R in cancer proliferation.*

CD200 is a cell membrane protein that interacts with CD200 receptor (CD200R) of myeloid lineage cells. During tumor initiation and progression, CD200-positive tumor cells can interact with M1 and M2 macrophages through CD200-CD200R-complex to silence macrophages. However, the functions of M1 and M2 cells in tumor growth are different, so CD200-CD200R has been shown to have apparently two contradictory experimental results in tumor growth: inhibition in melanoma and promotion in papilloma. We used a system approach to determine the combined effect of CD200-CD200R interaction on tumor proliferation by developing a mathematical model. We explained why these two opposite experimental results can both take place depending on the “affinity” of M1 and M2 macrophages to form the complex CD200-CD200R with tumor cells. If M1 cell has more affinity than M2 cell, then CD200-CD200R promotes tumor growth and block CD200-CD200R could be a good therapy. However, if M2 cell has more affinity than M1 cell, then we have opposite result that block CD200-CD200R will only increase tumor growth. Our results help understanding the complexities of tumor microenvironment. (Received September 15, 2014)