Thinking about the cancer-immune interaction

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The world of cancer research is excitedly pursuing the idea that the immune system can be harnessed to attack cancer cells and thereby provide long term remission for heretofore untreatable cases [1]. In order for this work, T-lymphocytes must detect the cancer cell via its aberrant proteins, the T-cells must be able to infiltrate the tumor so as to reach the cancer cells, and the cancer cells must not be able to inhibit immune response or evolve immune resistance [2]. This talk will describe our initial efforts [3,4,5] to create simple models of these processes to enable the beginnings of a quantitative approach to this entire field of study. Along the way, we encounter many interesting examples of the application of statistical physics to both cellular and tissue-level biology.

REFERENCES

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