



BIOETHICS AS A BARRIER AGAINST THE DUAL USE OF THE LAST BREAKTHROUGH DISCOVERIES IN MOLECULAR IMMUNOLOGY AND MICROBIOLOGY

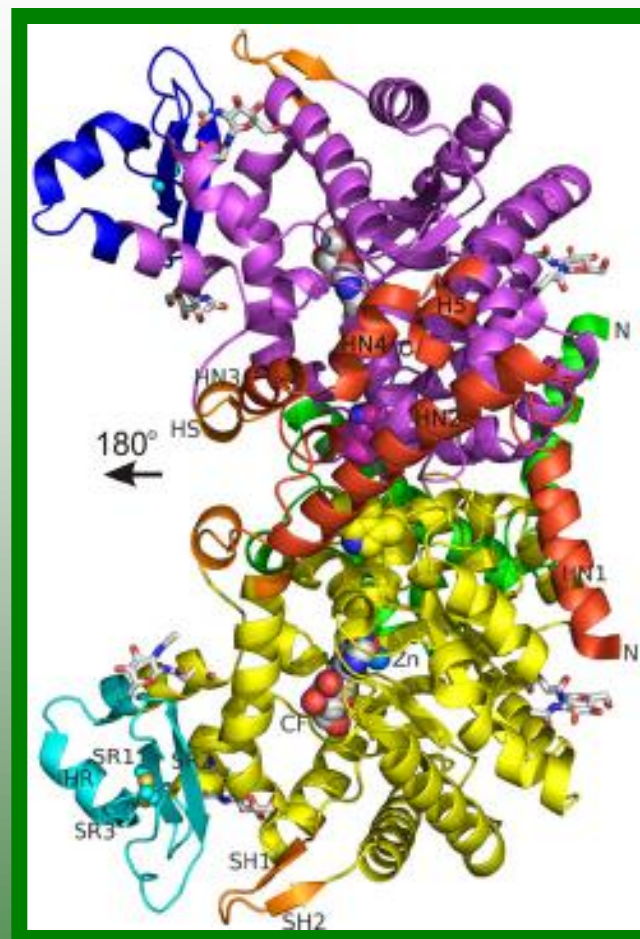
Prof. Vladimir P. Zaviyalov

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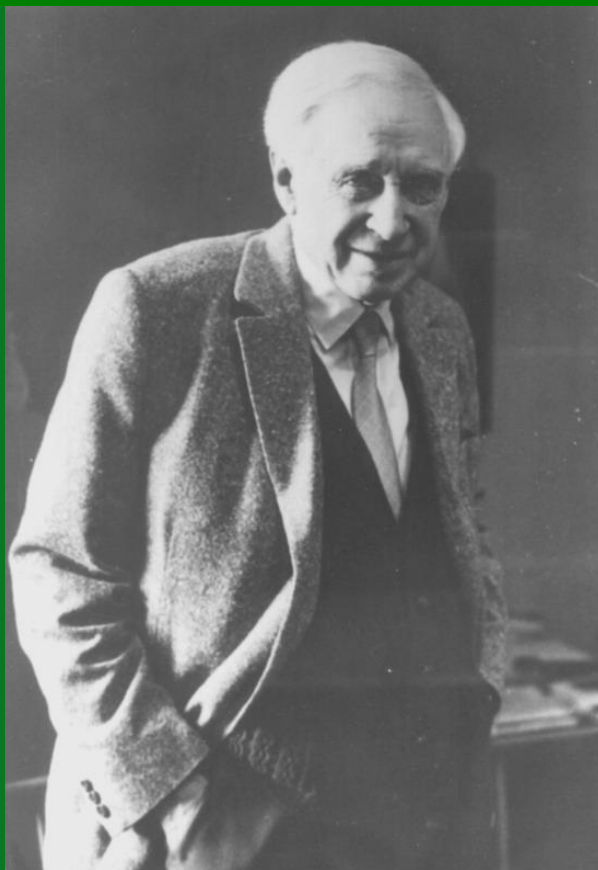
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DISCOVERY OF HUMAN TYPE 2 ADENOSINE DEAMINASE (ADA2)

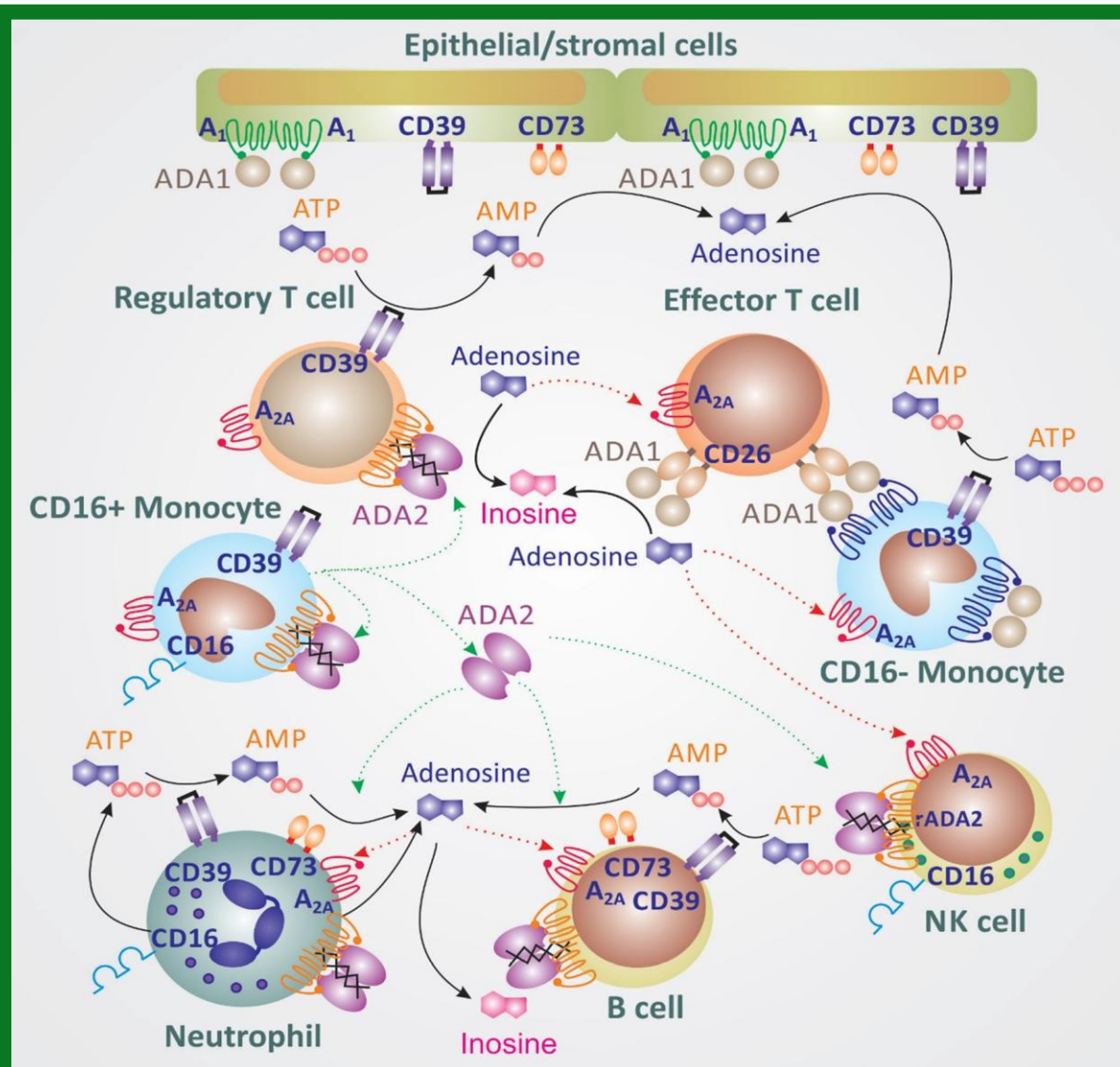
*Engelhardt W. & Lyubimova M., 1939,
Myosin and adenosine triphosphatase.
Nature 144, pp. 668-669*



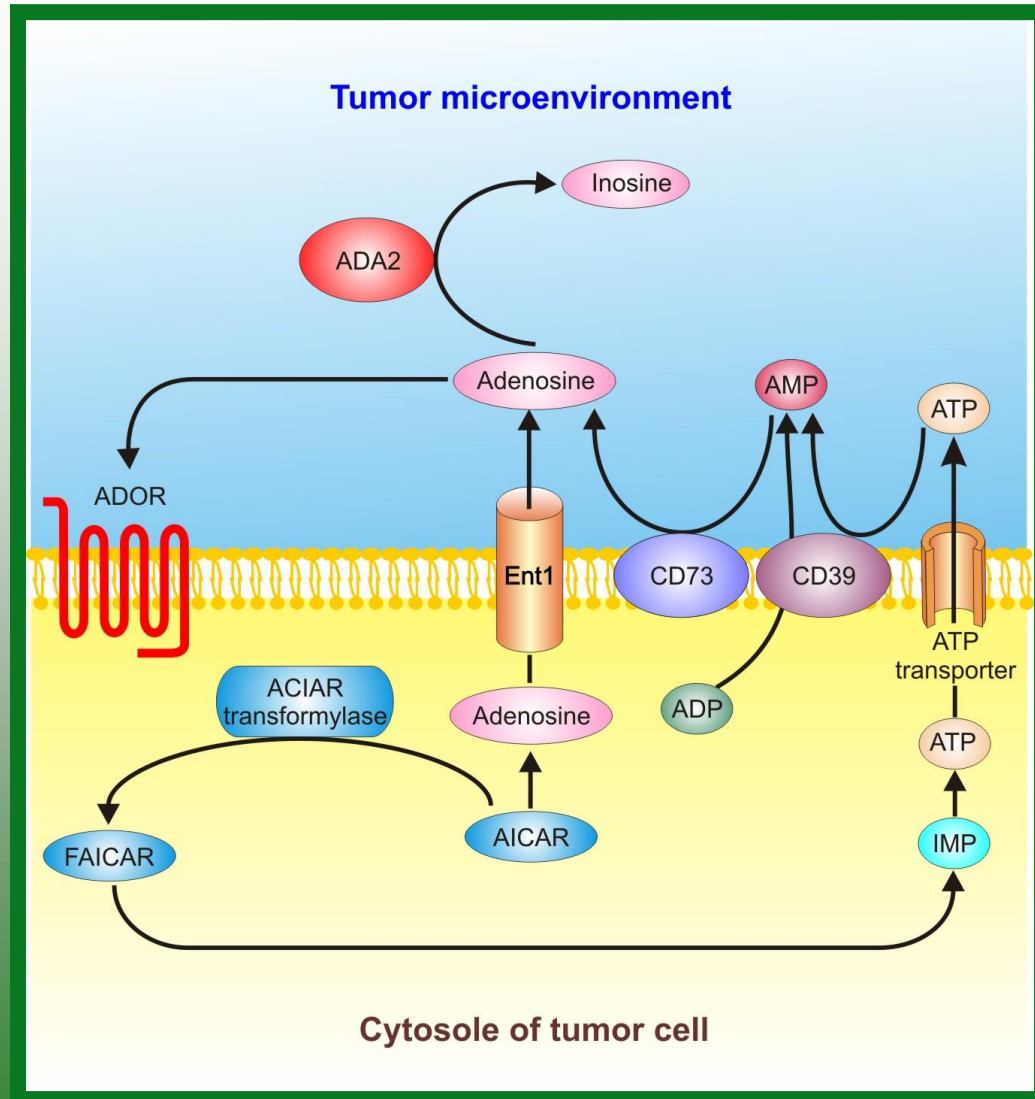
*Zavialov A. & Engstrom A., 2005, Biochem. J. 391, pp. 51-57
Zavialov A. et al., 2010, J. Leukoc. Biol. 88, pp. 279-290
Zavialov A. et al., 2010, J. Biol. Chem. 285, pp. 12367-12377
Zhou Q. et al., 2014, N. Engl. J. Med. 370, pp. 911-920
Kaljas Y. et al., 2017, Cell. Mol. Life Sci. 74, pp. 555-570*



ADA1 AND ADA2 BIND TO DIFFERENT SUBSETS OF IMMUNE CELLS



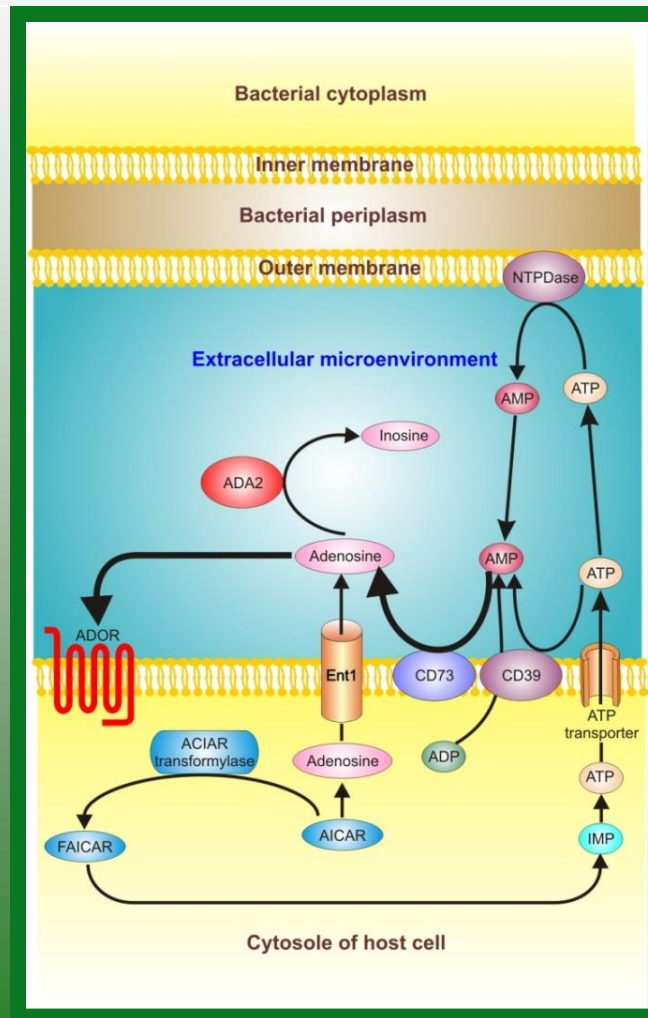
TUMOR CELL-DERIVED ADENOSINE PROTECTS THE TUMOR FROM IMMUNE CELLS



*Cronstein B. & Sitkovsky M., 2017, Nat. Rev. Rheumatol. 3, pp. 41-51;
Kaljas Y. et al., 2017, Cell. Mol. Life Sci. 74, pp. 555-570*



THE ENZYME OF *L. PNEUMOPHILA* ADENOSINE PATHWAY ACTS AS A VIRULENCE FACTOR TO ESCAPE HOST IMMUNE RESPONSE



Sansom F. et al., 2007, *Cell. Microbiol.* 9, 1922-1935

THE ENZYMES OF *B. ANTHRACIS* AND *S. AUREUS* ADENOSINE PATHWAYS ACT AS THE VIRULENCE FACTORS TO ESCAPE HOST IMMUNE RESPONSE

