

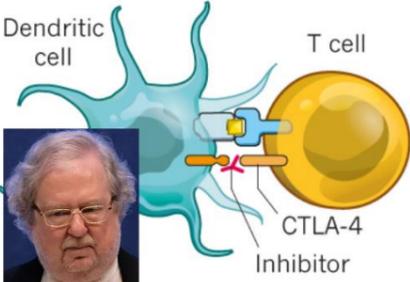
**Persuading immunity to keep acting against cancers:
Nobel pros (and cons)**

Satyajit Rath, Adjunct Professor, IISER, Pune

Our image of cancers has commonly involved the idea of something foreign growing in the human body. If it is not foreign, why does it grow so uncontrollably? If it is foreign, why does the immune system not recognize and stop it? The accumulating answers to these questions have come to involve a complex web of immunological mechanisms, and we start impatiently asking; - does any of that help us stop cancers? An unexpected outcome of those immunological studies has been a way of doing this, not so much by turning the immune system 'on' against cancers, but by stopping it from being turned 'off' against them. As this idea begins to come into real life in cancer treatment, two of its major pioneers have received the Nobel Prize for Physiology or Medicine for 2018. The very different stories of how they came to and pursued this idea is worth telling, to see how such ideas are born, how they grow and mature, how they reach out and touch real lives, and how they still leave yet more work to do.

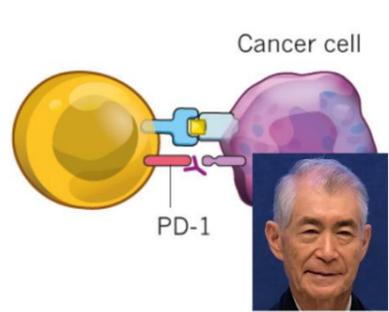
IMMUNE BOOST Several methods are showing promise in helping immune sentinels called T cells to attack cancer.

CHECKPOINT INHIBITOR DRUGS
'Checkpoint' proteins block T-cell activity. Inhibitor drugs can release the brakes on T cells at different stages.



CTLA-4
Inhibitor

The CTLA-4 checkpoint protein prevents dendritic cells from priming T cells to recognize tumours. Inhibitor drugs block the checkpoint.



PD-1

The PD-1 checkpoint protein prevents T cells from attacking cancer cells. The inhibitor drug allows T cells to act.

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Satyajit Rath, trained as a physician and a pathologist in Pune and Mumbai, has worked on mechanisms involved in the development and functioning of the immune system since the 1980s, initially in post-doctoral stints in and outside India, then as a faculty member at the National Institute of Immunology (NII) in New Delhi and since retirement, in an honorary capacity at the Indian Institute of Science and Research (IISER) in Pune. He also works on science-and-society policies with both government agencies and civil society groups, as well as with groups involved in science education.

Thursday, February 28, 2019, 5.15 p.m.
Lecture Theatre AG-66
Tata Institute of Fundamental Research
1 Homi Bhabha Road, Colaba, Mumbai -400005

Talk open to all

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