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Autore	Satoskar Abhay R
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Sommario/riassunto	<p>The ability of pathogens, such as parasites, bacteria, fungi and viruses to invade, persist and adapt in both invertebrate and vertebrate hosts is multifactorial and depends on both pathogen and host fitness. Communication between a pathogen and its host relies on a wide and dynamic array of molecular interactions. Through this constant communication most pathogens evolved to be relatively benign, whereas killing of its host by a pathogen represents a failure to adapt. Pathogens are lethal to their host when their interaction has not been long enough for adaptation. Evolution has selected conserved immune receptors that recognize signature patterns of pathogens as non-self elements and initiate host innate responses aimed at eradicating infection. Conversely, pathogens evolved mechanisms to evade immune recognition and subvert cytokine secretion in order to survive, replicate and cause disease. The cell signaling machinery is a critical component of the immune system that relays information from the receptors to the nucleus where transcription of key immune genes is activated. Host cells have developed signal transduction systems to maintain homeostasis with pathogens. Most cellular processes and cell signaling pathways are tightly regulated by protein phosphorylation in which protein kinases are key protagonists. Pathogens have developed multiple mechanisms to subvert important signal transduction pathways such as the mitogen activated protein kinase (MAPK) and the nuclear factor kB (NF-<math>\kappa</math>B) pathways. Pathogens also secrete effectors</p>

that manipulate actin cytoskeleton and its regulators, hijack cell cycle machinery and alter vesicular trafficking. This research topic focuses on the cellular signaling mechanisms that are essential for host immunity and their subversion by pathogens.

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