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Mediators of Inflammation

Special Issue on

Host Defense Sensors Evolution across Vertebrates during Viral Infection

CALL FOR PAPERS

During viral infection, a host must establish an appropriate antiviral and proinflammatory response to control virus replication, thereby limiting disease progression. An appropriate antiviral response depends on a proper induction of antiviral programs which is determined by a quick detection of the infection process. Such detection is mediated by specialized cellular pattern recognition receptors and antiviral restriction factors. Once activated, antiviral programs control the outcome of the inflammatory response against the intruder.

Virus evolution is a consequence of selective genetic mutations that allow a virus to escape from or to adapt to host defense mechanisms. On the other side, host defense factors are also under evolutionary pressure to adapt and keep or expand their function in detecting or controlling viral infections. The hypothesis based on such virus-host coevolution fitness race for survival has been termed as the Red Queen hypothesis.

Human genetic studies have described defects or mutations in viral pattern recognition receptors and antiviral restriction factors linked to immune deficiencies, making a patient more prone to suffer some infections. On the other hand, some mutations or nucleotide polymorphisms seem to be linked to better antiviral responses. Therefore, understanding evolution of host antiviral defense mechanisms that recognize and control the pathogenesis of viral infections is critical for the development of safe therapeutics and vaccines.

Here, we invite and encourage authors to submit original research and review articles that contribute to better understanding evolution of host defenses or coevolution of virus-host mechanisms involved in detection of viral infections. Articles can address basic antiviral defense programs as well as restriction factors and PRRs which directly or indirectly interfere with the virus infectious cycle in vertebrate animals. We are particularly interested in manuscripts describing evolutionary pressure on genes which participate in the host antiviral defense and are important in mediating inflammatory disease as well as their use as potential therapies.

Potential topics include, but are not limited to:

- ▶ Evolution studies of host antiviral factors across vertebrates:
 - ▶ Studies on selective pressure on pattern recognition receptors and danger recognition receptors involved in detection of viral infections and activation of antiviral and proinflammatory cellular programs;
 - ▶ Antiviral restriction proteins under evolutionary pressure and their role in host disease during viral infection;
 - ▶ Other not yet characterized host factors under evolutionary pressure which could be involved in immune recognition and new innate immune mechanisms to mount a counter-response against viral antagonistic mechanisms
- ▶ Genetic mutations in viral infection sensors linked to host immune variations and disease
- ▶ Other antiviral mechanisms linked to the Red Queen hypothesis

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/mi/hds/>.

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