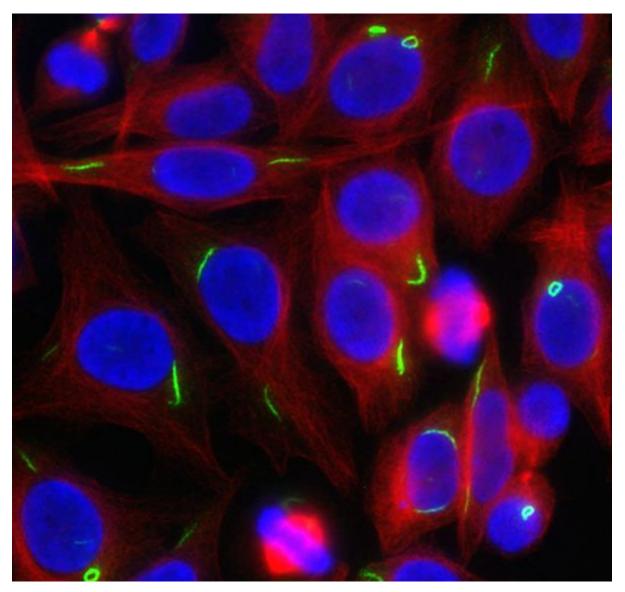
## Intracellular rod/ring structures regulated by the one-carbon metabolic pathway

Intracellular 'rod and ring' structures assemble when purine biosynthesis is disturbed, and are composed of inosine 5'-monophosphate dehydrogenase, the rate-limiting enzyme in de novo GMP biosynthesis. These structures were first identified by autoantibodies most often detected in hepatitis C patients after treatment with interferon- $\alpha$ /ribavirin.



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