

You can teach an old dog new tricks: anti-malarial prevents cancer in mice

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New data generated by a team of researchers from St Jude Children's Research Hospital, Memphis, and Scripps Research Institute, Jupiter, have indicated that the antimalarial drug chloroquine effectively prevents cancer in mouse models of two distinct human cancer syndromes, Burkitt lymphoma and ataxia telangiectasia.

As discussed in the accompanying commentary by Chi Dang, from Johns Hopkins University School of Medicine, Baltimore, these results complement an old epidemiology study suggesting that malarial prophylaxis with chloroquine diminished the incidence of Burkitt lymphoma.

In the study, chloroquine was shown to inhibit the development of Myc-induced lymphomas (a mouse model of Burkitt lymphoma) and to inhibit the development of lymphomas in ATM-deficient mice (a mouse model of ataxia telangiectasia). By contrast, chloroquine did not inhibit the development of lymphomas in p53-deficient mice.

Further analysis indicated that chloroquine induced cellular features of autophagy (self-eating) and mediated its effects by inducing lysosomal stress and provoking a p53-dependent cell death. The authors therefore suggested that modulating autophagy, either using chloroquine or other approaches, might provide a new avenue for the development of anticancer therapeutics.

Source: Journal of Clinical Investigation

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