Monkeys Achieve Drug-Free Control of SIV

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Adding both an arthritis drug and a chemotherapy drug to a highly intensified antiretroviral regimen appears to have led to a drug-free control of HIV among macaque monkeys. Publishing their findings in the journal Retrovirology, a group of Italian and American researchers added the gold salt auranofin and the chemosensitizing agent buthionine sulfoximine (BSO) to a five-drug antiretroviral regimen given to macaques infected with simian immunodeficiency virus (SIV). In a previous study, the researchers had found that the addition of auranofin succeeded in reducing both the viral reservoir and the post-therapy viral load set point.

Of the seven monkeys in the trial, all received the five-drug ARV cocktail. Two of them also received auranofin, three of them received auranofin and BSO, and two received no additional therapies.

After the researchers stopped the therapy of the three monkeys taking auranofin and BSO, their viral loads initially rebounded. But with time the animals experienced a significant drop of viral RNA and DNA in peripheral blood cells—an indicator of a diminished viral reservoir—as compared with levels seen before the monkeys began ARV treatment. The monkeys ultimately achieved enough control of their infections to prevent the development of AIDS. The researchers found that the presence of CD8 cells as well as an enhanced level of cellular immune response among the monkeys played a key role in this apparently successful therapy.

The researchers wrote, “The level of post-therapy viral set point reduction achieved in this study is the largest reported so far in chronically SIVmac251-infected macaques and may represent a promising strategy to improve over the current ‘ART [antiretroviral treatment] for life’ plight.”

The investigators plan to start a human clinical trial of this therapy in early 2014.

To read the study, click here.

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