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Synthetic RNA molecule mitigates HIV-induced apoptosis of cardiomyocytes and also prevents HIV infection

Chronic HIV infection causes a broad range of clinical complications, some of which remain poorly understood. One such complication is HIV-associated cardiomyopathy (HIVCM). In this study, we evaluated a novel approach to mitigate HIVCM using synthetic RNA molecules called aptamers. Specifically, we used a shortened synthetic derivative of anti-gp120 aptamer called UCLA1. The aptamer protected cardiomyocytes from HIV induced apoptosis. Furthermore, the aptamer also prevented infection of human macrophages and CD4+ T cells by a broad range of clinical isolates of HIV-1 from different subtypes. Taken together, these data argue in favour of further development of this RNA synthetic molecule to prevent HIV infection in uninfected individuals, and also to mitigate AIDS pathogenesis such as HIVCM in already infected individuals.

Biography

Makobetsa Khati is Head of the Emerging Health Technologies Department at CSIR Biosciences. He is also an Honorary Research Associate in the Department of Medicine at Groote Schuur Hospital and the University of Cape Town. Makobetsa holds several degrees including a Master's in Molecular Medicine from the Imperial College London, a Master of Public Health from the School of Public Health and Family Medicine, University of Cape Town, and a Doctorate in Molecular Pathology from the Sir William Dunn School of Pathology, University of Oxford.

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