Vervet monkeys (Cercopithicus aethiops) were shown to give a positive delayed-type hypersensitivity (DTH) reaction to gp63, a major surface glycoprotein of Leishmania parasites, and also produce antibodies to the molecule following a triple vaccination with a total dose of 150 micrograms of recombinant gp63 mixed with Bacille Calmette Guerin (BCG). However, peripheral blood leucocytes (PBL) from these animals neither proliferated nor produced any interferon-gamma (IFN-gamma) following in vitro stimulation with the antigen. Analysis of lymphocyte subsets following vaccination did not reveal any striking phenotypic alteration of cellular sub-populations in PBL. When vaccinated animals were rechallenged, via the needle, with virulent Leishmania major promastigotes containing salivary gland extracts from vector sandflies, only partial protection was achieved. We concluded from these studies that rgp63 produced in Escherichia coli is a safe vaccine molecule which gives only partial protection following vaccination in the vervet monkey host. The molecule requires further improvement for vaccine and/or immunodiagnosis application.