

Publication

A comparison between ((3)H)-thymidine incorporation and isothermal microcalorimetry for the assessment of antigen-induced lymphocyte proliferation

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Lymphocyte transformation tests (LTT) are time-consuming radioactive assays used in the clinic for the determination of allergic drug reactions and extensively in basic immunological research. In the present study we propose an alternative method in the monitoring of T-cell responses by isothermal microcalorimetric (IMC) measurements of overall cellular heat production as a function of time. For mitogen-induced lymphocyte proliferation, we analyzed a concentration dependent effect of phytohemagglutinin (PHA) and both tests showed a good correlation. This was also the case for specific antigenic stimulation with Vari-dase(R) or tetanus toxoid. On the other hand, antigen-induced lymphocyte proliferation analyzed by pre and post influenza vaccine (Inflexal(R) V) samples, showed no such correlation. Our study suggests that IMC measurements, despite the advantages of simplicity, on-line recording of metabolic activity and no use of radioactivity, may be limited to monitoring mitogen-induced lymphocyte proliferation.

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