

<p><b>Activity Name:</b></p> <p><b>MicroBeta<sup>2-</sup> scintillation counter</b></p>	<p><b>Category:</b> D. In-vitro toxicity studies</p> <p><b>Institute:</b> Slovak Medical University</p> <p><b>Location:</b> Limbova 12, 833 03 Bratislava, Slovakia</p> <p><b>Contact Details of Expert:</b></p> <p><b>Name:</b> Miroslava Kuricova, Jana Tulinska, Aurelia Liskova,</p> <p><b>Phone:</b> +421 2 59370 540, 244  <b>E-mail:</b> <a href="mailto:miroslava.kuricova@szu.sk">miroslava.kuricova@szu.sk</a>, <a href="mailto:jana.tulinska@szu.sk">jana.tulinska@szu.sk</a>, <a href="mailto:aurelia.liskova@szu.sk">aurelia.liskova@szu.sk</a>,</p>
<p><b>Short technology description/Overview</b> (<i>approx 300 words</i>):</p> <p>MicroBeta<sup>2</sup> is scintillation counter which detects beta and gamma luminescence. MicroBeta<sup>2</sup> contains a detector configuration with two photomultiplier tubes that detect the signal simultaneously. Called coincidence counting, this configuration ensures high efficiency and extremely low background for a variety of radionuclides. MicroBeta<sup>2</sup> is ideal for assays using <b>3H</b>, <b>14C</b>, <b>32P</b>, <b>33P</b>, <b>35S</b>, <b>51Cr</b>, <b>125I</b>.</p> <p>Common applications and methods include: Cell viability assays, Proliferation assays, Dry and liquid scintillation counting etc.</p> <p>Our typical assay performed using instrument:</p> <p><b>Lymphocyte transformation test</b>  Proliferation assay. It is an <i>in vitro</i> test of lymphocyte function. The test examines increased DNA synthesis (<b><sup>3</sup>H-thymidine incorporation</b>) followed by cell division and differentiation of lymphocytes in response to antigens or mitogens using liquid scintillation method.  Human blood cells <i>in vitro</i> cultivated and pulsed with nanoparticles or spleen/blood lymphocytes derived from exposed animals can be examined.</p> <p><b>Nanoparticles:</b>  In our lab, we used immune assays for evaluation of the potential immunotoxic effect of nanoparticles: titanium dioxide (TiO<sub>2</sub>), poly (D, L-lactide-co-glycolide) (PLGA), silica (SiO<sub>2</sub>), Endorem, uncoated magnetite (Fe<sub>3</sub>O<sub>4</sub>) and sodium oleate coated magnetite. Human peripheral blood was exposed with nanoparticles <i>in vitro</i>. Rat animal model was dosed with nanoparticles <i>in vivo</i> intravenously.</p> <p><b>Test systems:</b> human peripheral blood leukocytes, laboratory animals – rats</p>	
<p><b>Main Features (Equipment Capabilities):</b></p> <ul style="list-style-type: none"> <li>▪ Liquid scintillation counter - Microbeta 2 (Perkin Elmer)</li> </ul> <p><b>Other equipment necessary to perform assays:</b></p> <ul style="list-style-type: none"> <li>▪ Hematology analyzer - Sysmex K 4500</li> <li>▪ Biohazard laminar box</li> <li>▪ Centrifuge - Hettich</li> <li>▪ Incubator with CO<sub>2</sub> atmosphere - Jouan, Heracell</li> </ul>	

- Light microscope - Leitz

**Typical Samples & Images:**



*Any further Information:*