



Sea Urchin Embryo

In Vivo Test Model for Bioscreening

Advantages

Simple and inexpensive growth procedure

Synchronous development

Transparent embryos. Changes in their morphology are easily observed by light microscope

Permeability of eggs and embryos to various chemicals

Simple structure and well-studied embryonic development

Rapid cell divisions during cleavage stage (every 40-60 min)

Convenient and observable markers of embryo viability

Biochemical similarity to Vertebrate and Mammals

Current Approaches

■ The use of non-toxic fluorescent probes for in vivo study of drug effects on cellular biomolecules/processes

■ Preliminary estimation of anti-proliferative activity of putative tubulin/microtubule-binding chemicals

■ Evaluation of nitric oxide donor effects by NO-deficiency simulation

Our Biological Laboratory in Cyprus



References

Guidice G., The sea urchin embryo. A development biological system. Berlin-Heidelberg. Springer-Verlag. 1986

Hiratsuka T., Kato T. A fluorescent analog of colcemid, N-(7-nitrobenz-2-oxa-1,3-diazol-4-yl)-colcemid, as a probe for colcemid-binding sites of tubulin and microtubules. J.Biol.Chem., 262, 6318 (1987)

Nishioka D., Marcell V., Cunningham M., Khan M., Von Hoff D.D., Izbicka E. The use of early sea urchin embryos in anticancer drug testing. Methods Mol. Med., 85, 265 (2003)

Possible drug tests on early sea urchin embryos

