



MODEL ORGANISM DANIO RERIO AND ITS USE IN BIOMEDICINE APPLICATIONS



Centre for Natural
Sciences
and Technologies

J. E. Purkyně University in Ústí n. L.
Faculty of Science
Pasteurova 3632/15
400 96 Ústí nad Labem

Mgr. Michaela Liegertová Ph.D.
E-mail: michaela.liegertova@gmail.com
Tel.: +420 475 286 788
Room: 4.05

Mgr. Zuzana Nejedlá
E-mail: nejedla.z@email.cz
Tel.: +420 475 286 795,
+420 602 646 564
Room: 4.08

RESEARCH/TECHNOLOGY INTRODUCTION

Danio rerio is a model organism that has an important role in the field of science. It is a **small freshwater fish** that is widely used for **toxicity testing, studies of carcinogenicity, autoimmune diseases, embryonic development, genetics**, as well as **behavior and general physiology**. At the Faculty of Science UJEP, we breed this species for toxicity tests, research of the carcinogenesis of human tumors and the study of the biological activities of nanoparticles with therapeutic potential.

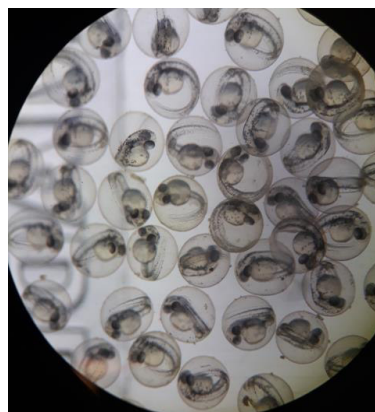
POTENTIAL USERS

Danio rerio provides an **option to test** the amount of **chemicals compounds**, both in terms of toxicity and, in general, their biological activity or distribution / accumulation in the organism. It can therefore be used, for example, by companies **developing new compounds for environmental applications or new types of drugs**.

ADVANCEMENT OF TECHNOLOGY AND MARKET APPLICATION

The advantages of this organism include external embryonic development, which allows non-invasive and relative simple monitoring of embryo development. Thanks to the large number of eggs, it is also possible to test several different chemicals in a short time, and overall this model is cheaper compared to others, for example in terms of breeding. There are various types, we breed one which lacks the skin pigment, so individuals are transparent and it is possible visualize their internal environment.

ADDITIONAL INFORMATION



Danio rerio embryos
seen by stereomicroscope

Xenografts of human
carcinoma injected
into hind brain