# Zebrafish high throughput screening using robotic injection technology

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Abstract:

In recent years the zebrafish has been shown to be an excellent model for studying tissue development and disease processes.  In our laboratory we used this model for studying mechanisms of the innate immune defense system. Using combinations of transcriptomic deep sequencing, morpholino knockdown and transgenic reporter fish technologies we have obtained new insights in the functions of key players of the innate immune system. These results relevant to infectious diseases and the study immune responses to cancer cells, for instance using xeno-transplantation assays. In this presentation we will show that such studies can also be extended to a high through put level.  For this we have developed an injection robot that can handle up to 2000 embryos per hour.  For optical screening we have employed Copas XL biosorter (Union Biometrica) for reading out disease symptoms using flow-through laser scanning profiling coupled with embryo sorting. We will show that such technologies will be highly applicable for screening the effects of small molecules on developmental and disease processes. In future screening for these effects we will include toxicological analyses and want to make large scale comparisons of injection and external addition of compounds.