General issue of our work group focused on problematic of very low survival level of nuclear-cytomplasmic hybrids after blastula stage and almost no survival rate after somite stage.

During of our collaboration work with Laboratory of Fish Physiology and Genomics LPGP, INRA were produced hybrids of goldfish, which were such a host for transplantation of nucleous from donor clone of goldfish and zebrafish. In this purpose, firstly, were produced clones of goldfish with subsequent transplantation of blastomeres from marginal region, which contain primordial germ cells of nuclear-cytoplasmic hybrid, into sterilized host. Sterilization of the host performed by using anti-dead end morpholino. Further step included chimera producing by transplantation of germ-line cells of nuclear-cytoplasmic hybrids. Microscopic part carried out with observation of germ plasm and PGCs of the host (goldfish) which were visualized by injection of GFP-nanos1 3'UTR mRNA (for visualization of PGCs) or GFP-buc mRNA (for visualization of germ plasm and early stages of PGCs). Transcriptomic analysis in both organisms, in host and in recipient, was evaluated by two techniques: conventional PCR and quantitative PCR. According to results of gel analysis of PCR products were detected specific bands response to molecular weight of zebrafish gene in the clones and chimeras. More sensitive method such as qPCR also revealed low level of genes expression from recipient-embryo in the genetical pattern of the host-embryo. In accordance, to our theory level of genes expression switched on due to degradation of cytoplasm of host embryo and activation of somatic cell activity. Low survival level of nuclear-cytomplasmic hybrids after blastula stage and almost no survival rate after somite stage could be explain by degradation of genetical material which is essentially important for developing of organisms. Deeply analysed patterns of clones and chimeras allow describing nuclear-cytoplasmic metamorphoses in clones and hybrids.

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