Animal-free screening platform: MicroMol established primary chicken intestinal epithelial cell lines
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It is a general goal in veterinarian biology that doubtful animal tests have to be replaced by alternative methods. In this regard an excellent alternative was developed by MicroMol: Primary cells from dissected small and large intestine tissue of white Leghorn chicken embryos were isolated and more than 200 cell clones representing different morphotypes could be established and in a further step immunologically characterized*. Theses cell lines are now available for the establishment as innovative alternative screening systems for (to give some examples):

- The examination of gut specific membrane transport processes
- The examination of digestive physiology concerning drug and feed kinetics
- The analysis of gut specific toxicity of chemicals, compounds and food additives

Especially in the context of comparative physiology of the digestive system these cell lines might be able to replace long and doubtful experimental animal studies with chicken populations. Moreover, because of the fact that the established cell lines represent defined cell entities and show unlimited growth potential these novel cell lines might also have the potential to overcome these limitations of freshly isolated heterogeneous chicken gut enterocyte populations.

In addition to that MicroMol has integrated a series of epithelial cell clones from this panel in R&D projects concerning the establishment of bioassays for the investigation of species specific pathogenic infection processes using the most common Salmonella strains during salmonellosis. Also in this regard these culture models might have the potential to replace the analysis of pathogenic mechanisms in animal models.

The fact that the established cell clones might represent almost entirely the small intestine MicroMol will be able – in analogy to commercially available skin models - to create a reconstitutive model of the chicken small intestine in order to set up test systems for the replacement of animal based investigations of the chicken gut.

* Witek, D.; Rudy, W.; Dreusch, A. H. J.; 2013; et al.; publication submitted

Background information: MicroMol GmbH
Founded in 1996 MicroMol GmbH is an owner-run, innovative life science company with an associated consulting department. MicroMol specializes in the development and implementation of highly complicated validation studies (under GMP conditions). Innovative test systems developed under these conditions are offered as routine services, such as the detection and identification of bacteriophages from cell banks or fermentation units. MicroMol’s laboratories are accredited according to ISO 17025 offering molecular biological, biochemical, cell biological and microbiological services at the most recent state. MicroMol performs own research projects and received for several times funding by the Federal Ministry for education and research, BMBF, the Allianz for industrial research, AiF, and Baden-Württemberg.

MicroMol GmbH
Hedwigstr. 2-8
D-76199 Karlsruhe
www.micromol.com
Fon: +49 721 941 521 3
Fax: +49 721 941 521 5
info@micromol.com