

学位論文の要旨

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主論文の題名			
A Novel Protocol for the Oral Administration of Test Chemicals to Adult Zebrafish.			
主論文の要旨			
<p>A novel protocol using gluten as a carrier material was developed to administer chemicals to adult zebrafish, per os (p.o.). To evaluate the capacity of gluten to retain chemicals, we prepared gluten granules containing eight types of chemicals with different Log P(ow) values and immersed them in water. Less than 5% of chemicals were eluted from gluten granules within 5 min, a standard feeding time for zebrafish. Although retention capability was dependent on the hydrophilicity and hydrophobicity of the chemicals, the gluten granules retained 62%-99% of the total amount of chemical, even after immersion in water for 60 min. Vital staining dyes, such as 4-Di-2-Asp and Nile red, administered p.o., were delivered into the gastrointestinal tract where they were digested and secreted. Subsequently, we conducted a pharmacokinetic study of oral administration of felbinac and confirmed that it was successfully delivered into the blood of zebrafish. This indicates that chemicals administered using gluten granules are satisfactorily absorbed from the digestive tract and delivered into the metabolic system. The absorption, distribution, and pharmacokinetics of chemicals given by oral administration were also compared with those of chemicals given by alternative administration routes such as intraperitoneal injection and exposure to chemical solution.</p>			