



Der Vorsitzende des Promotionsausschusses

EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Herrn M.Sc. Hyunki Cho

Experimentelle und Klinische Toxikologie und Pharmakologie
(Prof. Dr. Markus R. Meyer)

am

Mittwoch, 24. September 2025, 14:00 Uhr s.t.

per Videokonferenz: Link für MS Teams: <http://bit.ly/3UZyFzW>

Raum für die Prüfung:

Konferenzraum B1.001, (KIST-Europe), Campus E7

Thema der Dissertation:

Development of an Adverse Outcome Pathway for 5 α -reductase Inhibition: Environmental Implications for Endocrine Disruption

This dissertation examines the environmental risks of 5 α -reductase inhibitors, such as finasteride and dutasteride, which are used in medicine but act as endocrine-disrupting chemicals in nature. Using the Adverse Outcome Pathway (AOP) framework, the study explored their effects in both vertebrates and invertebrates. Sensitive LC-MS/MS and GC-MS/MS methods were developed to assess enzyme activity and hormone changes in human and fish cells, revealing broad disruptions in steroid hormones. In zebrafish embryos, inhibition of 5 α -reductase caused marked decreases in key sex hormones, while in *Daphnia magna* exposure led to impaired reproduction, gene expression changes, and altered lipid metabolism. These results demonstrate that such pharmaceuticals can disturb hormonal systems across species. By integrating molecular and organism-level data, the work establishes robust AOPs that improve chemical risk assessment and support environmental protection.

Saarbrücken, 10. September 2025

Prof. Dr.-Ing. Georg Frey