

## Technology Offer

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# Development of eco-friendly pharmaceuticals and chemicals

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### Summary

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*A German university is offering a novel method for the development of eco-friendly and sustainable chemicals and pharmaceuticals. By using cheminformatics it is possible to precisely evaluate the properties of a molecule in silico, allowing a broad analysis of its potential impact on the environment in order to meet the requirements of the EU restrictions of chemicals (REACH). Licensing agreements as well as industrial partners for joint development are sought.*

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<b>Last Update</b>	20 January 2015
<b>Expiration Date</b>	20 January 2016
<b>Reference</b>	TODE20150120001

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### Details

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#### Description

The university researches and trains in the field of sustainable chemistry and pharmacy. It focuses on environmental questions as well as social and ecological aspects in the context of the life cycle of chemical substances and products. This includes for example the extraction of raw material, its potential use as well as the fate after its use. The main goal is to develop chemicals and pharmaceuticals that are benign by design.

In order to achieve this aim, computer based models (e.g. QSAR, quantitative structure-activity relationship models) are used to prognosticate the structure and properties of a molecule. This leads to the development and design of novel agents, which are biologically inactivated and degraded into harmless fragments in the environment. Ensuring such properties is crucial for the registration and authorization of the chemicals and pharmaceuticals through the European Chemicals Agency (ECHA) and the European Medicines Agency (EMA), respectively.

A recent project at the university aims at the development and chemical synthesis of an eco-friendly version of a common antibiotic. The synthesized prototypes will be tested in vitro, regarding its environmental sustainability, biological and photolytic decomposition, pharmacological activities and adverse effects (mutagenicity, genotoxicity). Similar projects are currently in the making, including the improved redesign of the beta blocker propranolol and a textile chemical.

#### Advantages and Innovations

This is a novel approach which hasn't been integrated into medicinal chemistry and chemistry at all yet. The outcome could be a win-win situation with efficacious pharmaceuticals, which possess improved environmental properties.

## Stage of Development

Concept stage

### IPR Status

Secret Know-how

### Profile Origin

Other

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## Keywords

### Technology

006001016	Pharmaceutical Products / Drugs
006001019	Virus, Virology / Antibiotics / Bacteriology

### Market

004005	Molecular design
004006	Microbiology
004008	Biochemistry / Biophysics
005003002	Pharmaceuticals/fine chemicals

### NACE

M.72.1.1	Research and experimental development on biotechnology
Q.86.9.0	Other human health activities

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## Dissemination

### Send to Sector Group

Healthcare

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## Client

### Type and Size of Organisation Behind the Profile

University

### Year Established

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### Already Engaged in Trans-National Cooperation

Yes

**Languages Spoken**

English  
German

**Client Country**

Germany

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**Partner Sought****Type and Role of Partner Sought**

- Type of partner sought: Industrial partners
- Specific area of activity of the partner: Pharmaceutical industry
- Task to be performed by the partner sought: Sign a licensing agreement or joint development under technical cooperation agreement.

**Type of Partnership Considered**

License agreement  
Technical cooperation agreement