TNO: AI-Enabled Target Safety Assessment

De-risking Oncology Drug Discovery Before Lab Work Begins

Comprehensively Map Your Target's Risks From the Start

Too many drug development programs fail late, costing great loss of time and resources. Identifying potential safety liabilities of drug targets early on can minimize this risk. Performing a target safety assessment (TSA) can mitigate risk by building a comprehensive picture of a target's risk profile from existing literature, before compound synthesis and screening begins. TNO's AI-driven *in silico* approach, accessible through Oncode Accelerator, helps drug developers perform TSAs rapidly, systematically, and with limited human bias.

In Silico TSA

TNO combines data- and AI-based text mining with in-house biomedical and drug discovery expertise to create a comprehensive report of a target intervention's safety profile. The approach uses a generative AI model to extract relevant information from papers and other textual documents, make safety claims, and assess what the highest risks are based on the available evidence.

Sufficient confidence in outputs is ensured by including domain knowledge via a formalized ontology structure, having other large language models act as 'judges' to back-check generated information, and ensuring that answers are falsifiable via a human-in-the-loop review.

Access Through a Demonstrator Project

As a partner of Oncode Accelerator, TNO's *in silico* Target Safety Assessment is available to drug developers through Demonstrator Projects.

Within a Demonstrator Project, and in collaboration with the experts at the TNO, you can:

- Receive a comprehensive TSA report covering known and predicted adverse effects of modulating your target, at a scale and speed not achievable through manual/human review alone
- Identify the highest-priority safety risks for your target before compound synthesis begins, and use those findings to guide compound design and screening strategy
- Access expert human-in-the-loop review and support, ensuring that AI-generated conclusions are grounded in toxicological domain knowledge

Get Started

Get started with your application today by contacting our Business Development team at: https://www.oncodeaccelerator.nl/get-started

Demonstrator Projects

Demonstrator Projects are collaborative, co-funded preclinical development projects that use our integrated infrastructure. We focus on four therapeutic modalities represented by our Workstreams:

- small molecules,
- biologics,
- cell & gene therapies, and
- therapeutic vaccines.

These preclinical drug development pipelines combine our state-of-the-art drug development pipelines with innovations from our Platforms:

- artificial intelligence (AI),
- organoid models and organ-on-a-chip technology, and
- well-defined data and materials from our patient cohorts.

Oncode Accelerator

The Oncode Accelerator Project receives funding from the Dutch National Growth Fund (NGF). It is a collaboration between 6 coordinating partners: Leiden University, Leiden University Medical Center, the Netherlands Cancer Institute, Princess Máxima Center, UMC Utrecht, and the Oncode Accelerator Foundation, who lead individual consortia within the Oncode Accelerator Project.