



# Helios Biosciences Target Designer

Today, scientists are over-flooded by a huge amount of experimental data and have insufficient tools and strategies to integrate and interpret these data. Helios BioSciences has developed a technological platform to overcome these bottlenecks and help scientists to choose the best candidate and not the candidate they know the best. With our technology of dynamic modeling, therapeutic targets or biomarkers which are really relevant are accurately selected reducing the time and costs of the development of new therapies .

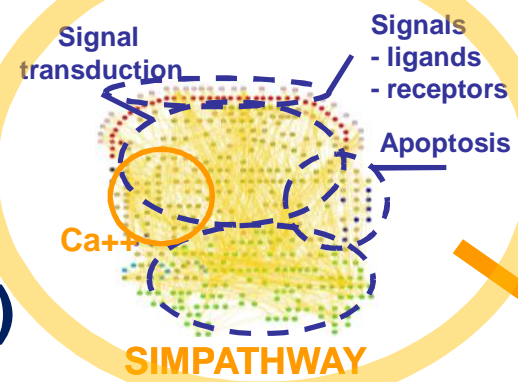
**Helios is proposing an access to its modeling platform.**

Using its technology Helios has characterized immunosuppressive drug targets that have been in vitro validated. **Helios is actively searching industrial partners to develop these targets.**

# Helios Modeling Platform

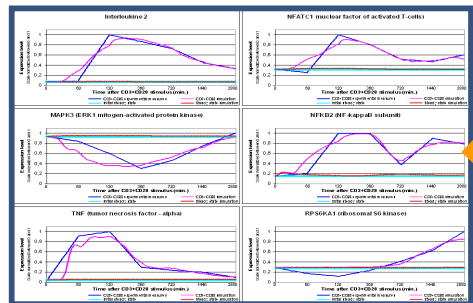
Our technology involves: a) a network of signalling interactions involved in the biological process modelled, b) experimental data describing the biological process, c) computing the model, d) Querying the model by simulations.

**a)**




Signal transduction  
Signals - ligands - receptors  
Apoptosis  
Ca<sup>++</sup>  
**SIMPATWAY**

**b)**



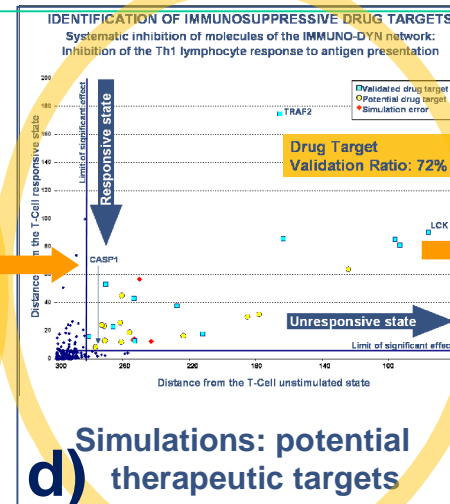
Compilation of signaling network + kinetic measurements Cellular/or Animal models

**c)**



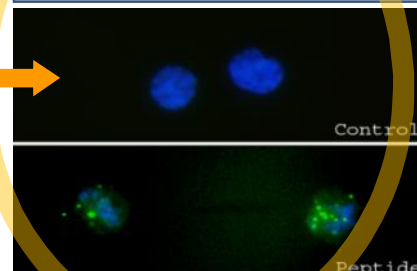
Mathematical integration of data

**DYNAPATH**  
Patent Pending



**Experimental validation**

- Cell cultures
- Whole animal



**Helios specificities:**

- Dynamic Systems algorithmics
- A database of biological networks.
- Experimental validation of the results.

# The technology has been successfully used to

Develop a dynamic model of the Diauxic shift in Yeasts. This first model describes the dynamics of a medium size network of 97 molecules and 362 interactions. The accuracy of the predictions of the model and its robustness have been validated.

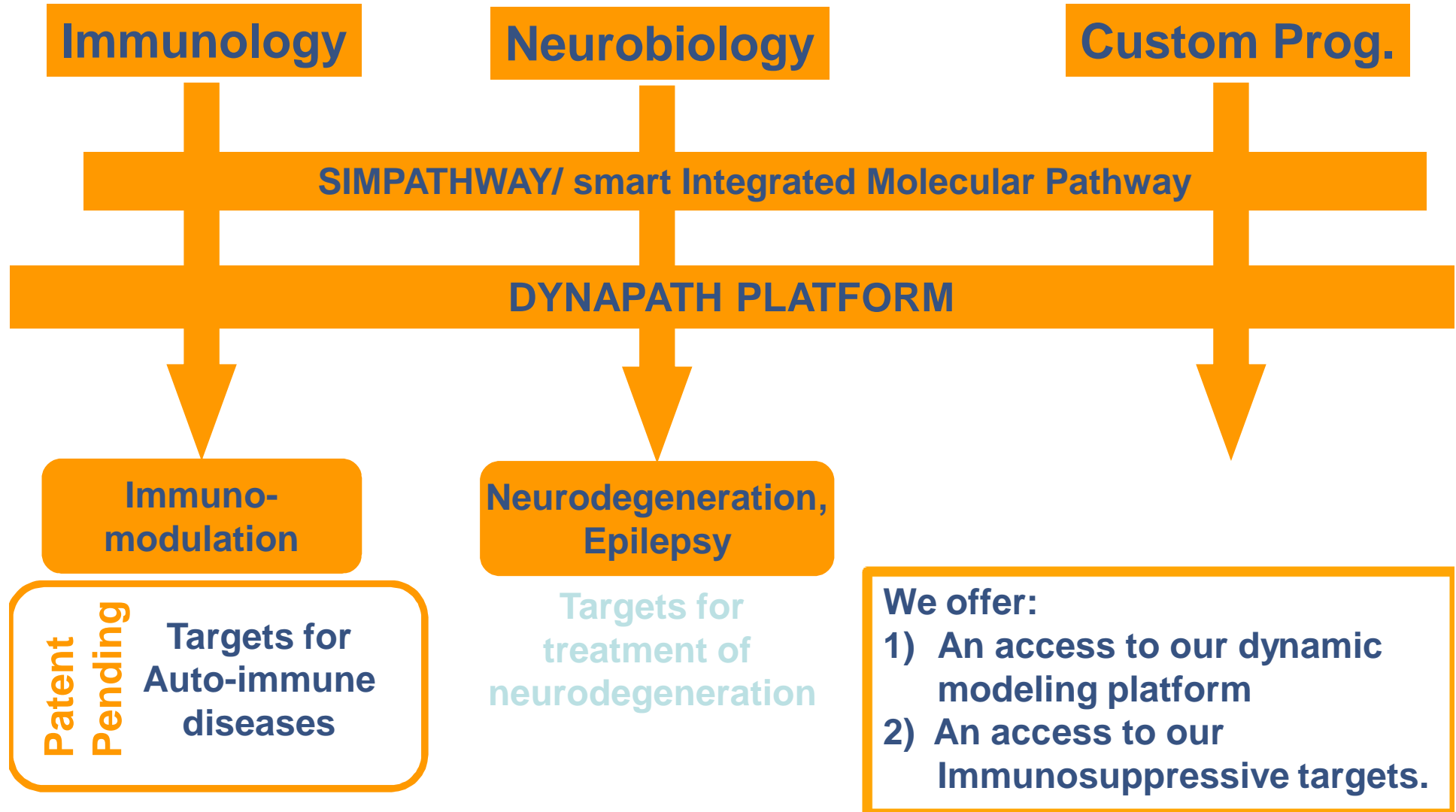
Develop a dynamic model of Immuno-stimulation in Humans. This second model describes the dynamics of a large size network of 350 molecules and 1500 interactions. The accuracy of the predictions of the model has been validated with experimental data: 70 % of the predictions were confirmed. Potential immunomodulatory therapeutic targets have been identified and are some of them already in vitro validated. The remaining targets are in the course of experimental validation.

Develop dynamic models of Neuro-degeneration in Mice. These models describe the dynamics of a large size-network of 520 molecules and 3000 interactions. It is used to identify potential therapeutic targets to treat neurodegenerative diseases, some targets being in the course of experimental validation

Develop Dendritic Cells Dynamic Models in Humans. One of these models describes and differentiates the complex innate behavior of dendritic cells when they are activated by a various stimuli (bacterial lipopolysaccharides, bacterial lipopeptides, viral-like double-stranded DNA, CpG (single stranded DNA)). The model is validated and aims at identifying potential drug targets for inflammation or anti-viral immunity.



# Our products



# Helios at a glance

Incorporated in May 2002. located in Créteil, near Paris.

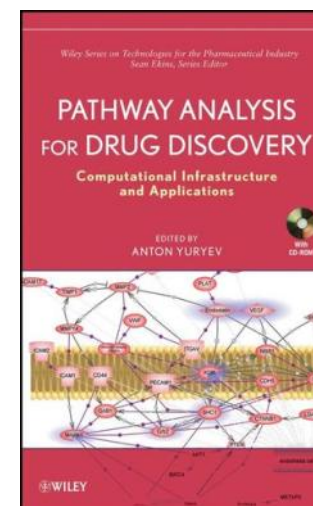


The technology has been developed internally and with the help of various European research grants (FP6: VALAPODYN and TEMPO, Euro-Transbio: GLOBCELL, and FP7: INFLACARE)

The technology as been described in:

1) An adaptative system model of the yeast glucose sensor system (Vujasinovic & Zampera) in Pathway analysis for Drug Discovery (Wiley; 2008).

2) Vujasinovic T *et al.*: In Silico Dynamic Molecular Interaction Networks for the Discovery of New Therapeutic Targets. *Curr Pharm Des.* 2010 May 12. PMID: 20459389



Our customers are cosmetic and pharma companies



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