

## Curriculum Vitae

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### Profile:

- Biotechnology
  - Production of drugs of microbial origin
    - Fermentation process development
    - Product isolation from fermentation broth
    - Analytical method adaptation (TLC, LC-MS)
  - Random and targeted strain improvement
  - Adaptation of molecular biological tools to bacteria and filamentous fungi
  - Protein expression and purification (FPLC, SDS-PAGE)
  - HTS assay development, colorimetric/fluorimetric detection

### Skills:

- Leadership and Teamwork
- Presentation in English

### Education:

Doctoral School:	2009-2012:	University of Debrecen, Juhász-Nagy Pál Doctoral School
	2012:	PhD. in Biological Sciences
University:	1980-1985:	Technical University of Budapest, Faculty of Chemical Engineering
	1985:	Chemical Engineer, MSc

### Work Experience:

Sep 15. 2020-	National Institute of Oncology, Department of Selenoprotein Research, Biologist
2014-2019:	Intrexon Laboratories Hungary Kft., Associate Scientist, Project Leader
2008-2013:	Codexis Laboratories Hungary Kft., Microbiology Project Manager
2005-2008:	TEVA, Department of Pharmacology, Research Associate
1999-2005:	IVAX Drug Research Institute Ltd., Department of Immunopharmacology, Research Associate
1985-1999:	Institute for Drug Research, Department of Microbiology, Research Associate

### My duties:

#### 2013-2019:

- Development of a versatile fungal expression system for enzyme discovery, expression and the production of enzymes and other proteins.
  - Generation of promoter and signal sequence libraries, enzyme expression, protease hunt and KO, productivity improvement.
  - Protein purification from fermentation broth: FPLC (ion exchange / hydrophobic interaction /size exclusion chromatography)
- Elaboration of *in vitro* enzyme assays: enzyme purification and assay optimization.

- Metabolite isolation from fermentation broth.

2008-2013:

- Improvement of filamentous fungal strains secreting cellulotic enzymes.
  - Diversity generation either by classical or targeted genetic manipulation, high throughput screening and selection of strains using colorimetric assays, fermentation process optimization, enzyme evolution.

2003-2008:

- Human gene cloning and expression in mammalian cells (MDCK, 3T3, Caco-2) in the field of transmembrane transporter proteins (MDR1, MRP2) and elaboration of calcein assay to measure MDR1 activity.
- Adaptation of enzyme assays (e.g. tyrosine transaminase, myeloperoxidase, TNF- $\alpha$  convertase, elastase) to investigate the pharmacological effect of drug candidates.
- Development of ELISA (direct and sandwich) methods.
- Microbiological hygienic investigations (animal rooms, laboratories, equipment) and limit test (seed number of bedding, food, water etc.) according to GLP requirements.

The results were published in periodicals in English.

1992-2006: My research work performed at the John Innes Institute in Norwich initiated the project of cloning of mycobacterial genes responsible for sterol degradation. My work included elaboration and adaptation of molecular biological methods to *Mycobacterium* strains. Steroid 9 $\alpha$ -hydroxylase gene was isolated from *Mycobacterium smegmatis*, it was sequenced characterized and expressed in *E. coli*.

1988-2002: As Research Associate, I worked in the field of microbiology and fermentation. This work included development of industrial methods for production of drugs of microbial origin. Some of our fermentation processes have been realized in the pharmaceutical industry (e.g. 4-androstene-3,17-dione is produced in Richter Gedeon, or cyclosporine is manufactured in Biogal (TEVA).

Research work was performed on mutation-selection methods and preparation and fusion of protoplasts of prokaryotes and eucaryotes. The results were published in posters, lectures and patents.

1985-1988: As Research Associate, I contributed to the downstream processing of fermentation broths to elaborate product isolation methods in laboratory scale (e.g. prescription for cyclosporine isolation from fermentation broth).

**Collaborations, scientific visits:**

1992: Scholarship at the Genetic Department, headed by Prof. Sir D. A. Hopwood, of John Innes Institute in Norwich, UK.

**Language Exam:**

1998: English-Hungarian, State Accredited Language Examination, intermediate level, combined (C) type, specialized in science.

2011: German-Hungarian, State Accredited Language Examination, elementary level, combined (C) type.