



1-2 February 2010  
KORANET PARTNERING EVENT

*Research for life-long health*

## Gábor Mező

Research Group of Peptide Chemistry,  
Eötvös L. University

Targeting of antitumor/antimicrobial  
drugs by peptide/protein bioconjugates



## RESEARCH CENTRE

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Eötvös Loránd University

Hungarian Academy of Sciences



Research Group of Peptide Chemistry



**Professors:** Ferenc Hudecz, Head of the Research Group, Rector of the University  
Gábor Mező, President of the Hungarian Peptide Society

**Antitumor drug targeting**

**Associate Professors:**

Anna Magyar,  
**Rheumatoid arthritis**

Szilvia Bősze,  
**Mycobacterium tuberculosis**

Katalin Uray,  
**Autoimmune diseases**

Gitta Schlosser  
**Mass spectrometry**

3 postDocs

7 PhD students

12 undergraduate students

3 assistants



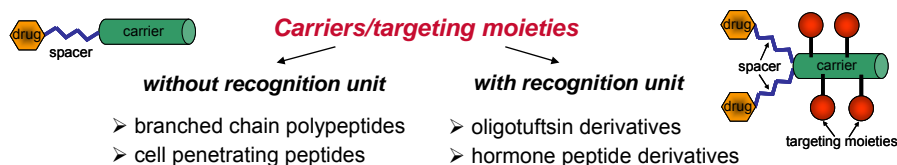


## PROJECT IDEA

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### Targeting of antitumor/antimicrobial drugs using peptide/protein bioconjugates

**Aim of the project:** Increase the (cell) specificity of antitumor/antimicrobial drugs



#### Antitumor/antimicrobial agents

daunorubicin, doxorubicin, methotrexate, pemetrexed, camptothecin, vindolin,

isoniazid, *p*-aminosalicylic acid  
new antituberculars selected by docking methods

#### Conjugation/chemical ligation

amide, ester, oxime, hydrazone

#### In vitro tests

Cytotoxicity, cytostasis, cellular uptake, hemolysis, antimicrobial activity, apoptosis assay



## EXPERTISE

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**Peptide synthesis:** in solution and on solid phase, cyclization, conjugation, chemical ligation, „click” chemistry, fluorescence labeling.

**Purification and characterization:** RP-HPLC, elemental analysis, amino acid analysis, mass spectrometry, enzymatic and plasma stability studies.

**Structural studies:** CD, VCD, NMR, X-ray crystallography (cooperation with the Department of Organic Chemistry of Eötvös L. University)

**In vitro studies:** tumor cell lines, determination of cytotoxicity and cytostasis by MTT, LDH assays, cellular uptake studies using flow cytometry and fluorescence microscopy, apoptosis studies, gene expression studies by RT-PCR, determination of *in vitro* antimicrobial activity.





## PARTNER SOUGHT

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Comparative analysis of  
genomics/proteomics of treated cells

**Cells:** different types of tumor cells

**Methods:**

- 2D gel electrophoresis
- LC-MS
- MALDI MS
- RT-PCR
- Microarrays
- Protein chip
- Isotope labeling

*In vivo* experiments

**Animal models:**

- Tumor bearing mice models
- *Mycobacterium tuberculosis* or  
*Leishmania* infected animal models

**Measurements:**

- Biodistribution
- Antitumor activity
- Antimicrobial activity
- Mechanism of action



## CONTACT DETAILS

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