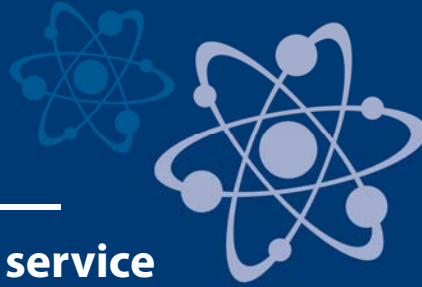


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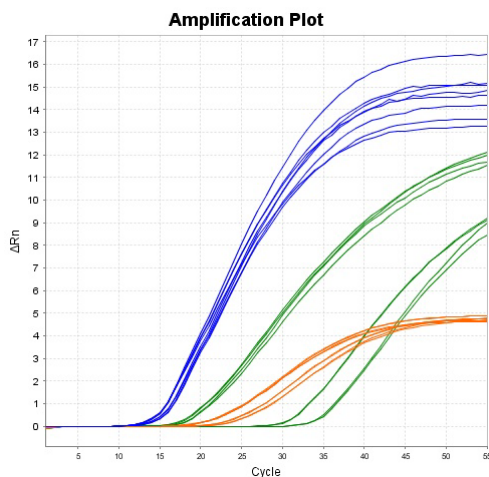


Gene expression measurement service



Regulation of gene expression

Cells react to changes in the environment with changing their gene expression. Environmental impact results in alteration of the packaging of certain genes and binding of transcription factors to DNA. From these genes then, mRNA molecules are produced, which re-program the protein synthesis system of the cell, and structural or enzyme proteins that implement the cellular response are produced. Regulation of gene expression can occur at any step during this process, but it is performed most effectively at one of the initial steps, by regulation of binding of transcription factors to the DNA and synthesis of the mRNA.



Examination of mRNA level

High throughput techniques are used nowadays for the studies of gene expression (pl. microarray hybridization), but the results of these experiments always have to be confirmed using independent methods. It is necessary to examine mRNA expression performing reverse transcription followed by real time, quantitative, PCR, and to study protein expression using immunological methods. These assay methods are all available at our laboratory. Furthermore, we can examine the packaging of genes and binding of transcription factors to DNA using a method called chromatin immunoprecipitation. We use luciferase reporter system to study promoter activity, that is measured on luminometer. Enzyme activity and cell viability assays can be performed using a fluorescent plate reader.

Services offered

- Determination of mRNA expression using real time quantitative RT-PCR
- Examination of protein-DNA interaction *in vivo* using chromatin immunoprecipitation
- Study of protein expression employing immunological methods
- Examination of promoter activity using luciferase reporter system
- Enzyme activity assays employing fluorescence techniques
- Cell viability, cytotoxicity and cell death assays



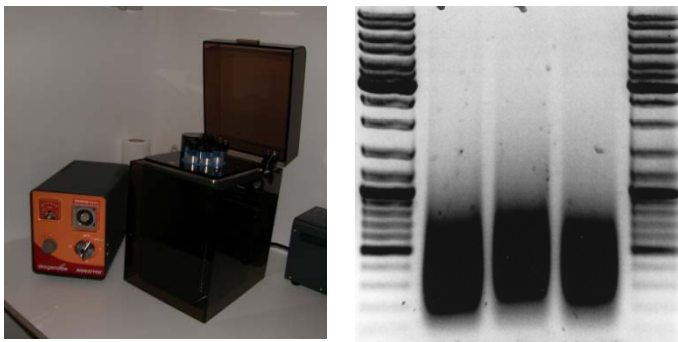
Luminometer



Mammalian tissue culture laboratory

Equipments

StepOnePlus Real Time PCR system (Applied Biosystems)
LUMIstar Optima luminometer (BMG Labtech)
FLUOstar Optima fluoriméter (BMG Labtech)
Bioruptor sonicator (Diagenode)
Molecular biological laboratory equipment (e.g. Bio-Rad gel electrophoresis systems)
Mammalian tissue culture laboratory (CO₂ incubator, laminar airflow cabinet)



Sonication of DNA for examination of protein-DNA interactions

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Contact person:

Dr. Éva Bálint, research group leader

Bay-Gen Institute

Derkovits fasor 2, H-6726 Szeged

Tel.: +36 62 566 444, +36 30 619 8947

Fax: +36 62 546 974

balinte@baygen.hu, www.baygen.hu

Innovációs
híd

