Eva Forssell-Aronsson

Department of Radiation Physics

University of Gothenburg (UGOT)

Sahlgrenska University Hospital

Sweden

The Sahlgrenska Academy

UNIVERSITY OF GOTHENBURG

Research interest

- Biological effects of radiation on normal cells, tissues and organisms
- Better understanding of the underlying molecular mechanisms and signalling pathways
- Radiation related biomarkers
- Biological dosimetry
- Influence of other factors on radiobiological effects, e.g. circadian rhythm, chemicals/drugs etc.

Infrastructure

- Laboratories for handling very low to very high amounts of most types of radionuclides, also alpha emitters
- Detectors and measurement techniques of radioactivity using alpha, beta and gamma radiation (very low to high radioactivity levels)
- Cell culture facilities
- Animal facility for small to larger animals
- University hospital: possibilities to include patients and healthy volunteers
- Irradiation facilities using radionuclides (emitting alpha particles, electrons and photons), external radioactive sources, X-ray machines and linear accelerators of various types for external irradiation using photons, electrons, protons
- Dosimetry. Internal dosimetry. External dosimetry. Monte Carlo codes.
- Molecular techniques for studies of effects on genome, transcriptome, and proteome. Microarray, RNAseq, qPCR, Northern blot, Western blot, MS-techniques, ELISA, histopathological techniques, immunohistochemistry, etc. Epigenetics. Programs for analysis, e.g. Nexus, R, IPA. Biostatistics

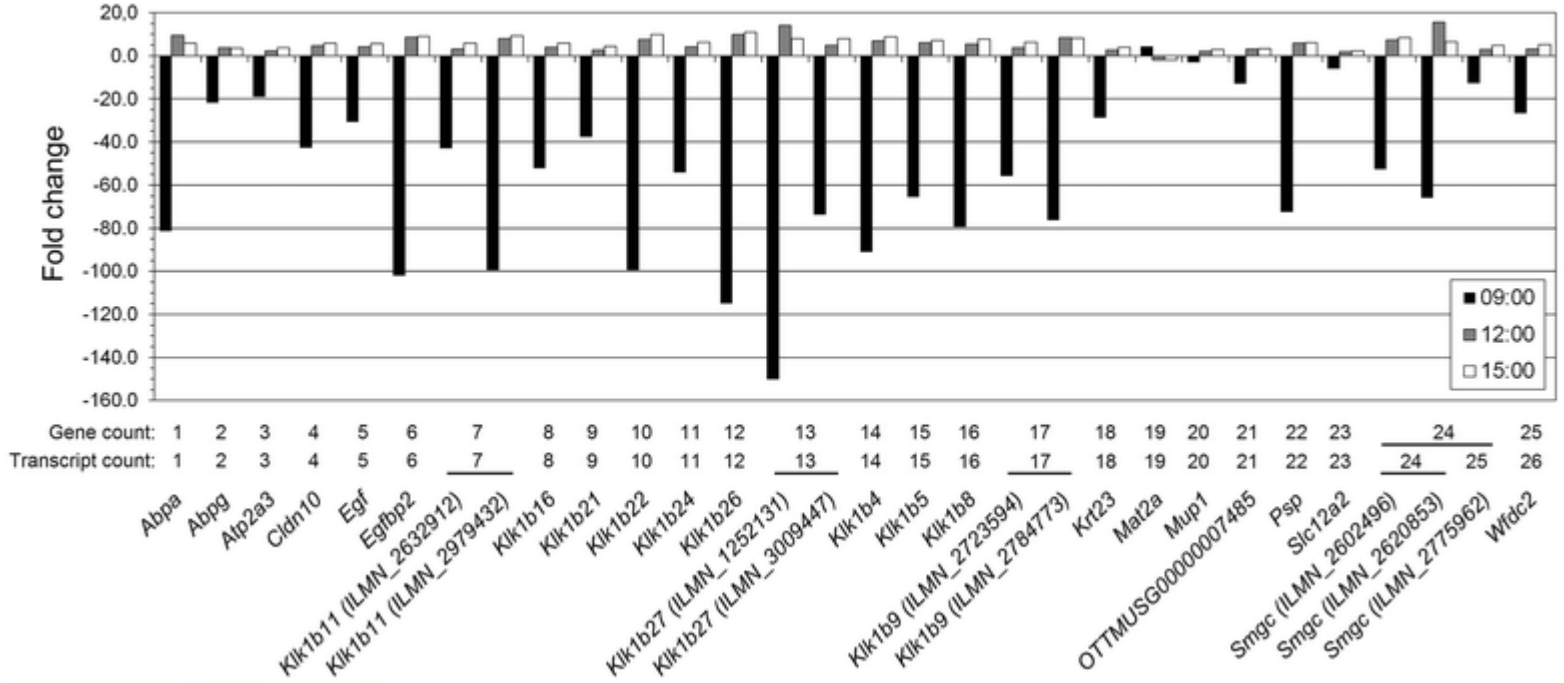
Competence of the group

- **radiation physics**
- **radiation biology**
- **molecular biology**
- **molecular genetics**
- **pathology**
- **oncology**
- **tumour pathology**
- **biostatistics**
- **toxicology**
- **biochemistry**

Effect of circadian rhythm

Transcripts regulated over time of day in thyroid

90 kBq ^{131}I at
9 am, 12 am, 3 pm



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