

Doris Mayer



Signal transduction in hormone dependent cancer

Current research

Cancers of the breast and prostate occur at a high frequency. Endogenous steroid hormones and the respective receptors are strongly involved in development of these cancers. However, the receptors are not only activated by the respective ligands but also by growth factor-related signalling events resulting in phosphorylation of the receptor. Interference with receptor activation for therapy requires the understanding of growth factor and steroid hormone interaction.

We focus on protein kinases related to estrogen receptor function in breast cancer. We are especially interested in the role of glycogen synthase kinase-3. Glycogen synthase kinase-3 was shown to have a dual function in regulation of estrogen receptor activity stabilising the receptor in unstimulated cells by protein/protein interaction and phosphorylating/activating it in estrogen-stimulated cells.

Furthermore, we are interested in the interaction between the IGF-signalling pathway and estrogen receptor signalling.

Future Projects and Goals

Knowledge of estrogen receptor function is a prerequisite for targeting the receptor for breast cancer therapy. We will continue to unravel the mechanisms related to estrogen receptor activation.

Selected Publications

De Servi B, Hermani A, Medunjanin S, Mayer D (2005) Impact of PKC δ on estrogen receptor localisation and activity in breast cancer cells. *Oncogene* 24, 4946-4955.

Medunjanin S, Hermani A, De Servi B, Grisouard J, Rincke G, Mayer D (2005) Glycogen synthase kinase-3 interacts with and phosphorylates estrogen receptor- α and is involved in the regulation of receptor activity. *J. Biol. Chem.* 280, 33006-33014.

Grisouard J, Medunjanin S, Hermani A, Shukla A, Mayer D (2007) Glycogen synthase kinase-3 protects estrogen receptor- α from proteasomal degradation and is required for full transcriptional activity of the receptor. *Mol. Endocrinol.* 21, 2427-2439.

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