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Poster presentation

Tyrosine phosphorylation of NO-sensitive guanylyl cyclase

Sabine Meurer*, Steffen Gross, Sylke Pioch and Werner Müller-Esterl

Address: Institute for Biochemistry II, University of Frankfurt Medical School, Frankfurt, Germany

Email: Sabine Meurer* - meurer@biochem2.de

* Corresponding author

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NO-sensitive guanylyl cyclases (GC) are the principal receptors for nitric oxide (NO) and convert GTP into the second messenger cGMP. We showed that GC is prone to tyrosine phosphorylation in COS1 cells overexpressing the human holoenzyme. Similar results were obtained in PC12 cells and in rat aortic tissue slices. The major phosphorylation site was mapped to position 192 in the regulatory domain of the β_1 subunit. Tyrosine phosphorylation of GC was reduced in the presence of the inhibitors PP1 and PP2 indicating that Src-like kinases are critically involved in phosphorylation. Moreover, co-immunoprecipitation experiments revealed an interaction between Src and GC. To further analyse the relevance of this posttranslational modification we generated a phospho-specific antibody raised against pTyr192. This antibody clearly distinguishes between phosphorylated and non-phosphorylated GC and may be a powerful tool to analyse the subcellular localisation of the phosphorylated enzyme.