N-glycosylation pattern changes for brain NPP-5 in *Mecp2*-mutant murine models of Rett syndrome

Joussef Hayek [1], Alessio Cortelazzo [1,2], Roberto Guerranti [2], Cinzia Signorini [3], Silvia Leoncini [1,3], Alessandra Pecorelli [1,3], Francesco Scalabrì [4,5], Michele Madonna [4], Stefania Filosa [4,6], Cinzia Della Giovampaola [7], Antonietta Capone [7], Thierry Durand [8], Cristiana Mirasole [9], Lello Zolla [9], Giuseppe Valacchi [10], Lucia Ciccoli [3], Jacky Guy [11], Maurizio D'Esposito [4,12], Claudio De Felice [13]

[1] Child Neuropsychiatry Unit, University Hospital (AOUS), Policlinico "S. M. alle Scotte", Siena, Italy; [2] Department of Medical Biotechnologies, University of Siena, Siena, Italy; [3] Department of Molecular and Developmental Medicine, University of Siena Via Aldo Moro, Siena, Italy; [4] IRCCS Neuromed, Pozzilli, Italy; [5] Department of Biochemistry, Biophysics, and General Pathology, 2nd University of Naples, Naples, Italy; [6] Institute of Biosciences and BioResources CNR, Naples, Italy; [7] Department of Life Science, University of Siena, Siena, Italy; [8] Institut des Biomolécules Max Mousseron (IBMM), UMR 5247, CNRS/UM1/UM2/ENSCM, BP 14491, 34093 Montpellier Cedex 5, France; [9] Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy; [10] Department of Life Sciences and Biotechnology, University of Ferrara, Ferrara, Italy; [11] The Wellcome Trust Centre for Cell Biology, University of Edinburgh, Edinburgh, UK; [12] Institute of Genetics and Biophysics "Adriano Buzzati Traverso" CNR, Naples, Italy; [13] Neonatal Intensive Care Unit, University Hospital, AOUS, Siena, Italy

Neurological disorders can be associated with protein glycosylation abnormalities, as induced by oxidative stress in the central nervous system. Rett syndrome (RTT) is a devastating genetic brain disorder, mainly caused by *de novo* loss-of-function mutations in the methyl-CpG binding protein 2 (*MECP2*) gene. Although its pathogenesis appears to be closely associated with a redox imbalance, no information on glycosylation is available.
It is well known that N-linked glycans influence a spectrum of biological process and protein functions in brain (1).
Glycoprotein detection strategies (i.e., lectin-blotting) were applied to identify target glycosylation changes in the whole brain of *Mecp2* mutant murine models of the disease. Remarkable glycosylation pattern changes for a peculiar 50 kDa protein i.e., the *N*-linked brain nucleotide pyrophosphatase-5 (NPP-5), belonging to the nucleotide pyrophosphatases/phosphodiesterases family, were evidenced (2). In particular, a decreased *N*-glycosylation in the presymptomatic and symptomatic mutant mice was observed. Glycosylation changes were rescued by selected brain *Mecp2* reactivation. Our findings indicate that there is a causal link between the amount of *Mecp2* and the *N*-glycosylation of NPP-5.

References

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