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Paleoproteomics and paleoglycomics studies of the three oldest (2400y – 5300y) human mummies every found in ice

Roger Powell², Rick Reisdorph², Spencer Mahaffey², Hyun Joo An³, Grace Ro³, Sureyya Ozcan³, Carlito Lebrilla³, Christian Reiter⁴, Thomas Bereuter^{4,5} and Rudolf Grimm^{1,3}

2) National Jewish Health Institute, Denver, USA; 3) UC Davis, Davis, USA; 4) Medical University of Vienna, Austria; 5) Technical University Graz, Austria 1) Agilent Technologies, Santa Clara, USA

Tissue proteomics today is widely applied for the identification of biomarkers that are characteristic for particular diseases or disease progression. For biomarker discovery and validation typically fresh tissue samples or formalin fixed tissue samples that are not older than 20-100years are used. In this project we asked the question whether we can identify proteins and glycans in tissue samples that are older than 1000 years old and that are derived from mummified human bodies. After optimizing protein extraction protocols we were able to identify a significant number of proteins as well as glycans derived from glycoproteins in all samples. Data will be presented from minute amounts of mummy tissue samples, e.g. from a 2400y old Scythian princess, a 2400y old Scythian Warrior and from the famous 5300y old iceman (also called Oetzi).