

**P022** SUMO-1, SUMO-2 and SUMO-3 polymerize *in vivo* via the internal sumoylation sites of SUMO-2 and SUMO-3  
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Polyubiquitin chains on target proteins play important functional roles. Whether ubiquitin-like proteins also form polymers is less clear. Vertebrates express three Small Ubiquitin-like MOdifiers, SUMO-1, SUMO-2 and SUMO-3. Mature SUMO-2 and SUMO-3 are nearly identical and contain an internal consensus site for sumoylation that is missing in SUMO-1. **Combining state-of-the-art mass spectrometry with a novel modification-specific strategy,** we provide direct evidence that SUMO-1, SUMO-2 and SUMO-3 form mixed chains in cells via the internal consensus sites for sumoylation in SUMO-2 and SUMO-3. *In vitro*, the chain-length of mixed SUMO polymers could be influenced by changing the relative amounts of SUMO-1 and SUMO-2.