

## Supporting Information

# Mucin (Qniumucin), a Glycoprotein from Jellyfish and Determination of its Main Chain Structure

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## **Supporting Information Contents**

**S1: Results of ion-exchange chromatography of crude qniumucin from various jellyfish species.**

**S2: Results of amino acid sequencing for qniumucin purified by ion-exchange chromatography.**

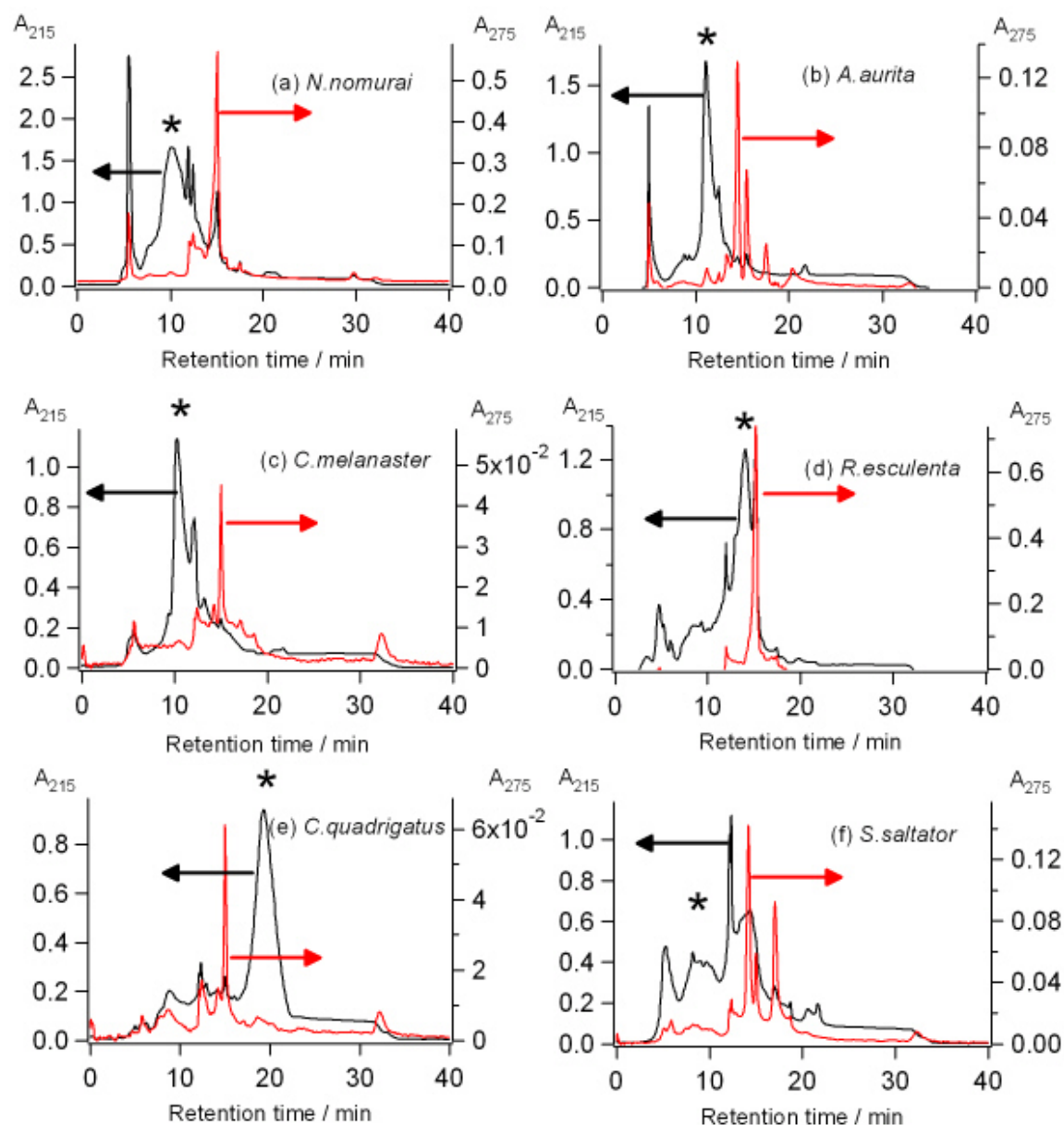
**S3: Results of amino acid sequencing for qniumucin after  $\beta$ -elimination followed by EtSH addition.**

**S4: Results of amino acid contents analysis (HPLC) of residue 4 in S3.**

**S5: Results of amino acid contents analysis (HPLC) of residue 5 in S3.**

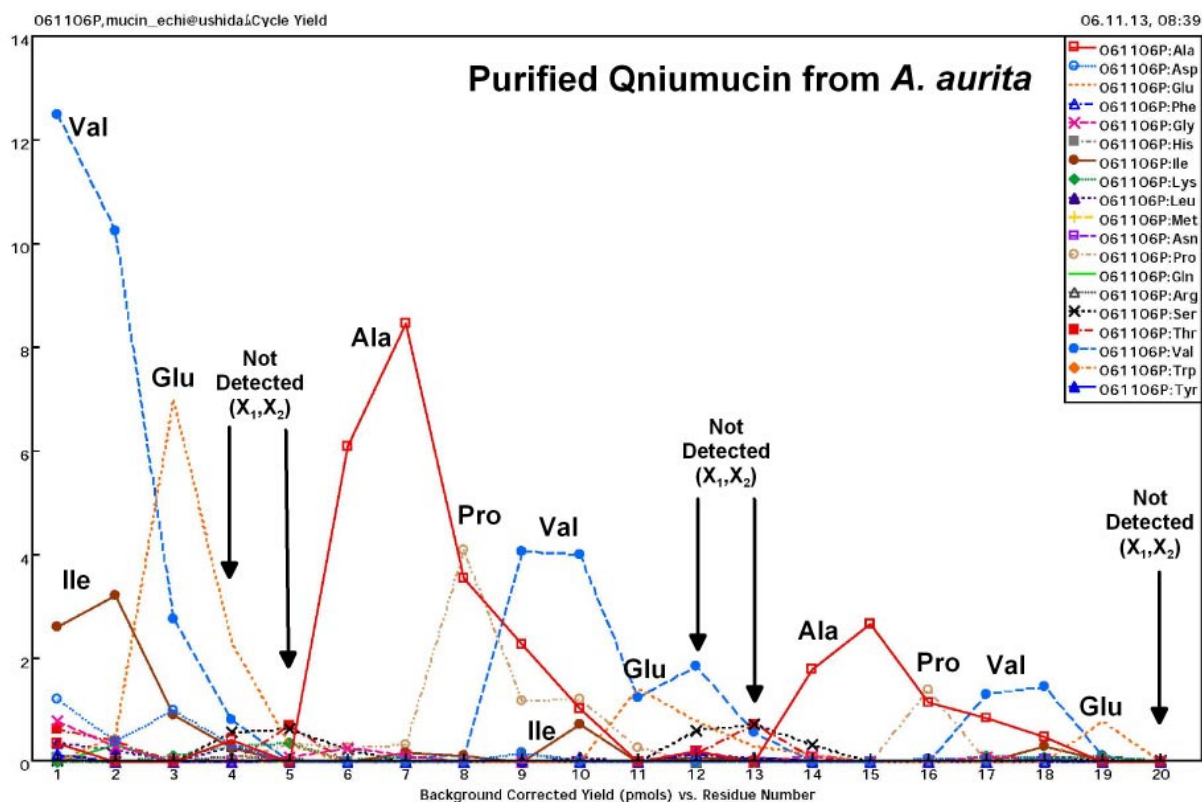
**S1: Results of ion-exchange chromatography of crude qniumucin from various jellyfishes species.**

(a) *Nemopilema nomurai*, (b) *Aurelia aurita*, (c) *Chrysaora melanaster*, (d) *Rhopilema esculenta*, (e) *Chiropsalmus quadrigatus*, and (f) *Spirocodon saltator*. Chromatography with UV absorbance at 215 nm (black line) and 275 nm (red line). Qniumuchin peaks are marked by asterisks.



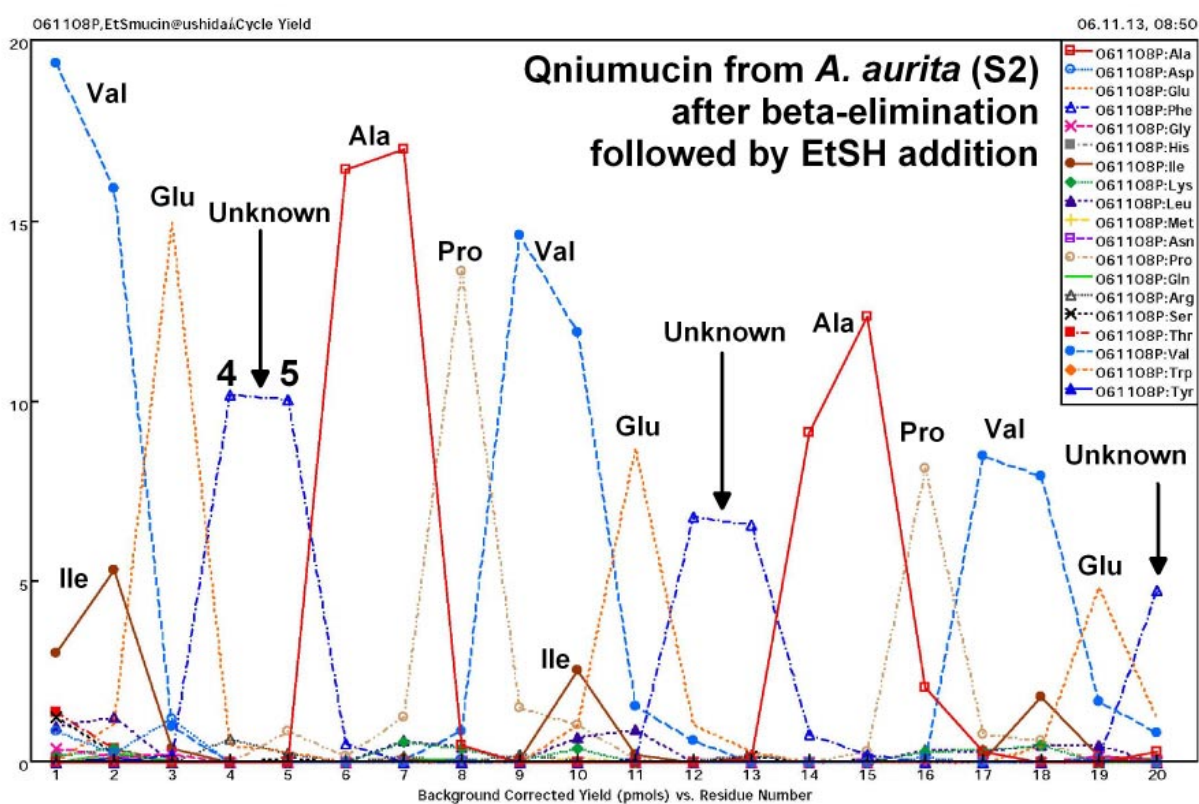
## S2: Results of amino acid sequencing for qniumucin.

Purified qniumucin was sequenced using a protein sequencer (Procise HT494, Applied Biosystems, CA, USA) . Amount of each amino acid residue versus residue number is plotted.



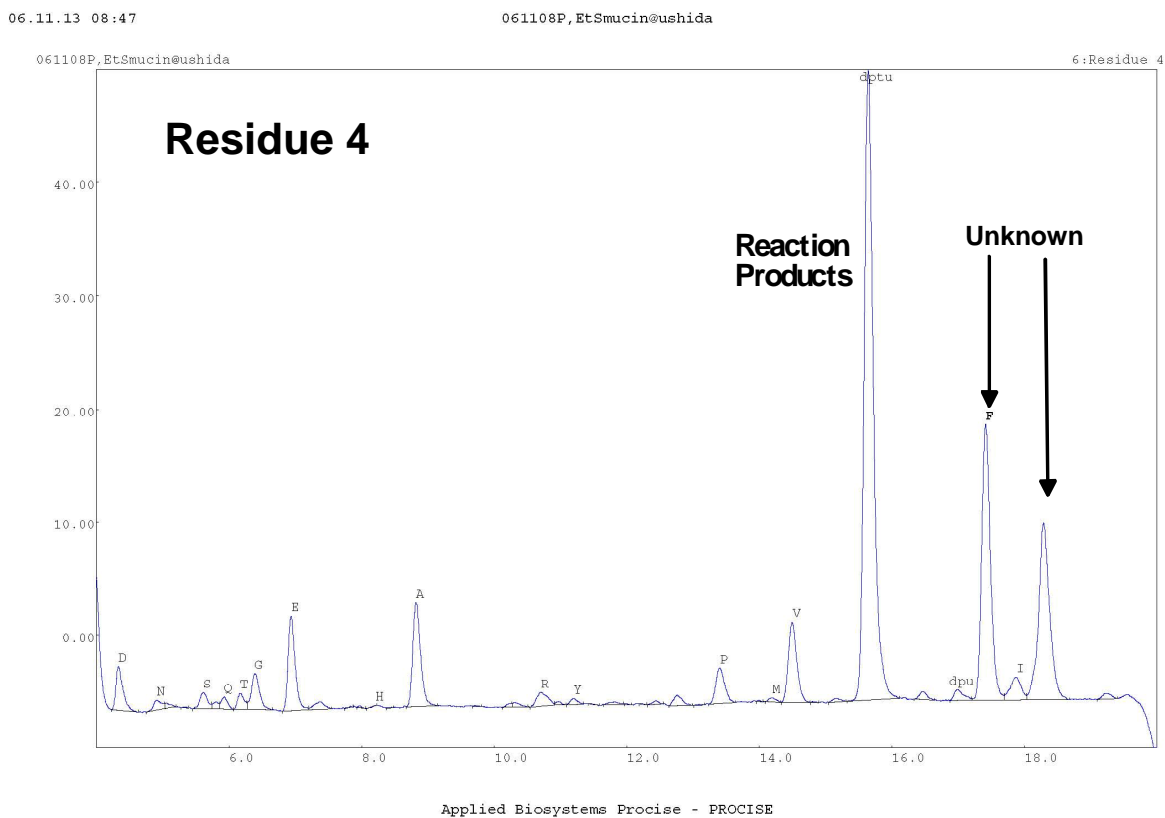
**S3: Results of amino acid sequencing for qniumucin after  $\beta$ -elimination followed by EtSH addition.**

Purified qniumucin (120  $\mu$ g) dissolved in 50  $\mu$ L of H<sub>2</sub>O were subjected to  $\beta$ -elimination/EtSH addition by addition of a mixture of 14  $\mu$ L of H<sub>2</sub>O, 64  $\mu$ L of DMSO, 32  $\mu$ L of EtOH, 21  $\mu$ L of 5 N NaOH, and 20  $\mu$ L of EtSH. The reaction mixture was heated for 9.5 h under N<sub>2</sub> at 50 °C. After cooling to room temperature, an aliquot of the mixture was directly analyzed by a protein sequencer.



#### S4: Results of amino acid contents analysis (HPLC) of residue 4 in S3.

The amino acid derivatives are denoted by single-letter code. Reaction byproducts, diphenylthiourea and diphenylurea, are denoted by indicate DPTU and DPU, respectively.



## S5: Results of amino acid contents analysis (HPLC) of residue 5 in S3.

The amino acid derivatives are denoted by single-letter code. Reaction byproducts, diphenylthiourea and diphenylurea, are denoted by indicate DPTU and DPU, respectively.

