SUPPORTING INFORMATION

Mutational analysis of the ability of resveratrol to inhibit amyloid formation by islet amyloid polypeptide: Critical evaluation of the importance of aromatic:inhibitor and histidine:inhibitor interactions

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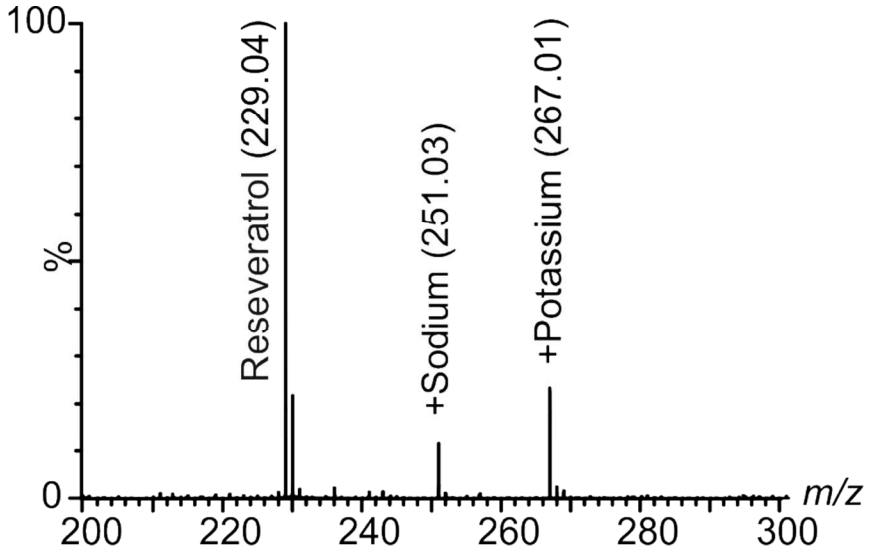

Figure S1: ESI-MS spectrum of a sample of 640 μM resveratrol collected after 24 h incubation in 50:50 20 mM ammonium acetate:20 mM ammonium bicarbonate buffer, pH 7.4. The value of m/z, 229.04, corresponding to a molecular weight of 228.04 indicates that the compound has not degraded.

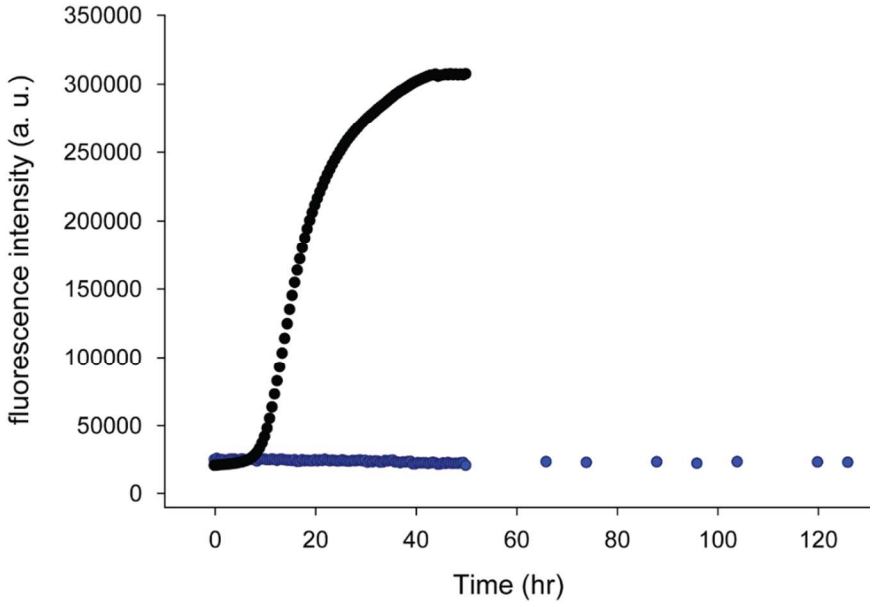

Figure S2: Thioflavin-T monitored kinetic experiments for wild-type IAPP (black) and wild-type IAPP in the presence of 20-fold molar excess of resveratrol (blue). Samples contained 16 μM IAPP at pH 7.4, 20 mM Tris buffer with 1% (*v/v*) DMSO.

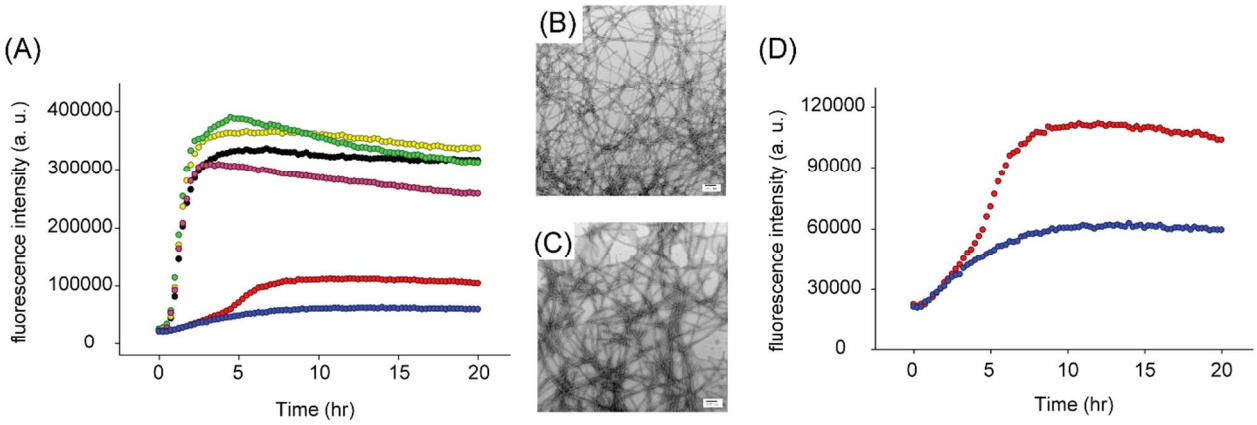

Figure S3: Resveratrol is not an effective inhibitor of amyloid formation by H18L-IAPP. (A) Thioflavin-T monitored kinetic experiments for H18L-IAPP, black; H18L-IAPP and resveratrol at a 1:1 ratio, yellow; at a 1:2 ratio, green; at a 1:5 ratio, pink; at a 1:10 ratio, red; at a 1:20 ratio, blue. (B) TEM image for H18L-IAPP and (C) for the 1:20 mixture of H18L-IAPP and resveratrol. Samples were collected for TEM at 22 h for H18L-IAPP with and without resveratrol. (D) An expansion of the data for H18L-IAPP with resveratrol at 1:10 and 1:20 molar ratios. Samples contained 16 μM IAPP at pH 7.4, 20 mM Tris buffer with 1% (*v/v*) DMSO. Scale bars represent 100 nm.

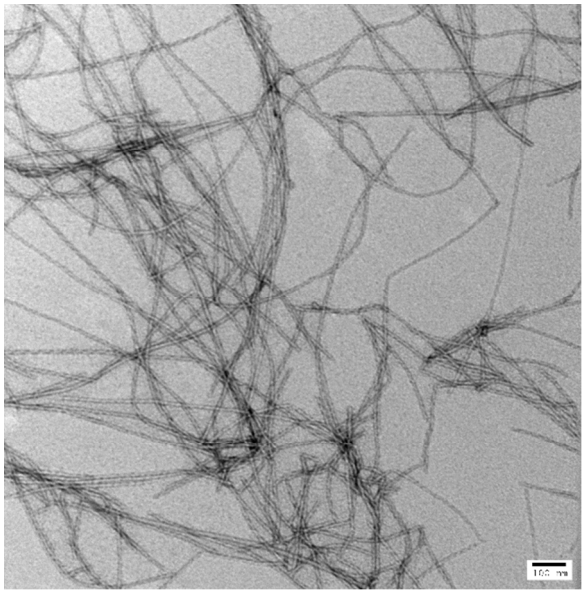

Figure S4: TEM image of F23L-IAPP fibrils with a 20-fold molar excess of resveratrol. Samples were removed from thioflavin-T kinetics experiments at 142 h. Scale bar represents 100 nm.

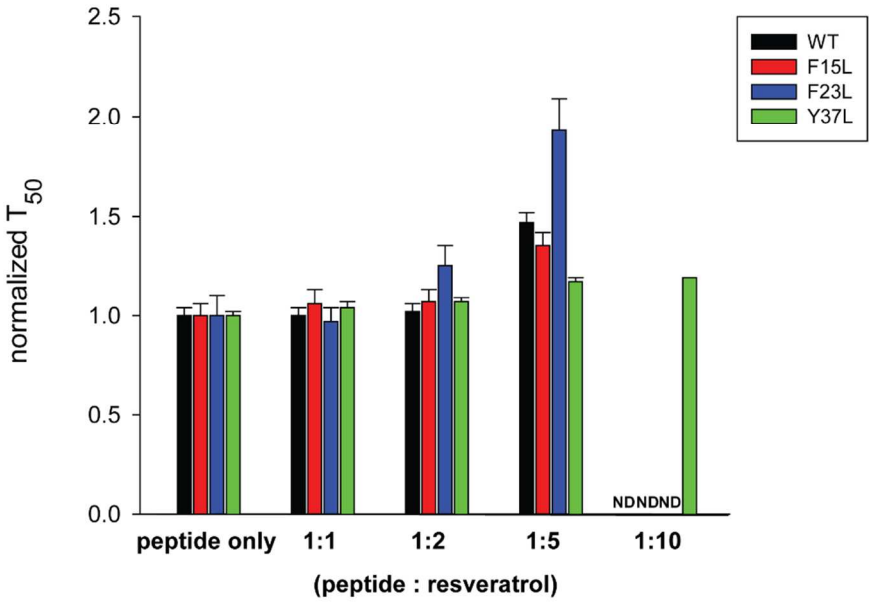

Figure S5: Comparison of the effect of different amounts of resveratrol on the t_{50} value for amyloid formation by wild-type IAPP (black), F15L-IAPP (red), F23L-IAPP (blue), and Y37L-IAPP (green). ND indicates could not be determined because of lack of any fluorescence signal. The error bars represent propagation of the uncertainty, generated from 2 or 3 independent studies. The Y axis is (t_{50} with resveratrol)/ (t_{50} no resveratrol). ND= could not be determined because resveratrol interfered with the thioflavin-T assay.

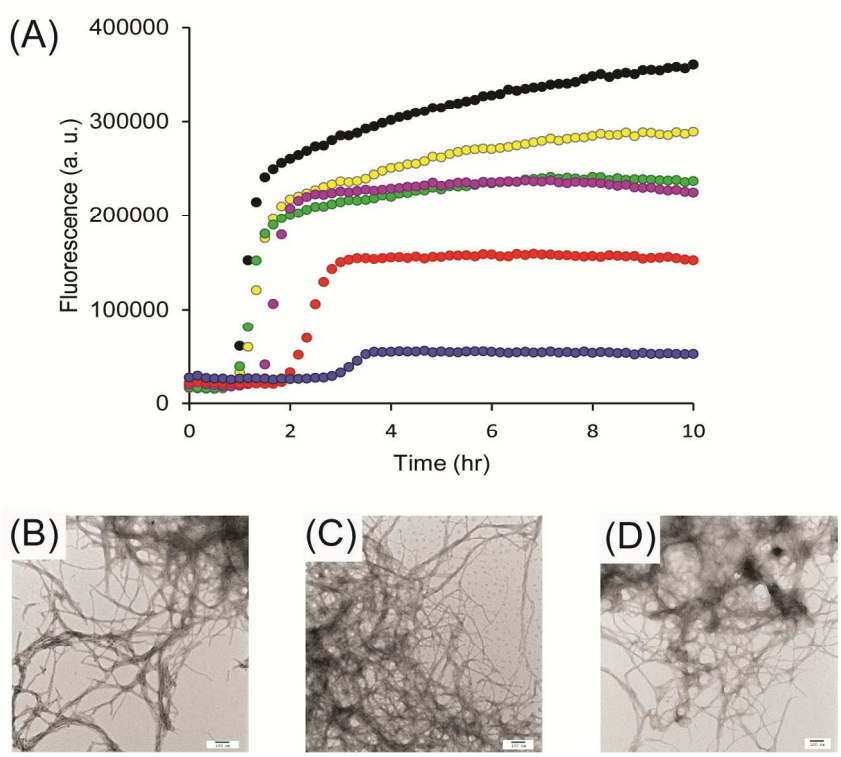

Figure S6: Resveratrol is not an effective inhibitor of amyloid formation by R11L-IAPP. (A) Thioflavin-T monitored kinetic experiments for R11L-IAPP, black; R11L-IAPP and resveratrol at a 1:1 ratio, yellow; at a 1:2 ratio, green; at a 1:5 ratio, pink; at a 1:10 ratio, red; at a 1:20 ratio, blue. (B) TEM image of the amyloid fibrils formed by R11L-IAPP. (C) TEM image of the 1:10 mixture of H18Q-IAPP and resveratrol. (D) TEM image for the 1:20 mixture of R11L-IAPP and resveratrol. Samples were collected for TEM at 4.5 h and contained 16 μM IAPP in pH 7.4, 20 mM Tris buffer with 1% (*v*/*v*) DMSO. Scale bars represent 100 nm.