

## Supplementary Data

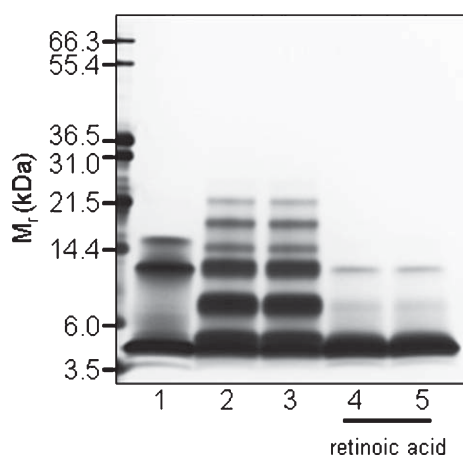
# Vitamin A has Anti-Oligomerization Effects on Amyloid- $\beta$ *In Vitro*

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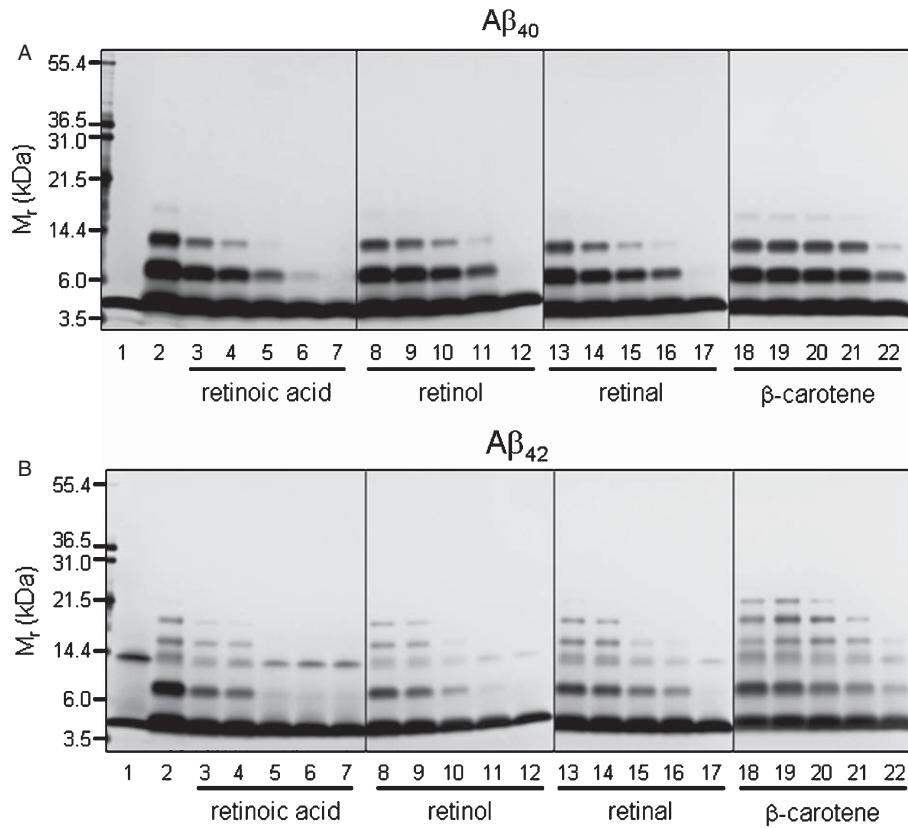
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Supplementary Figure 1. SDS-PAGE of cross-linked A $\beta$ <sub>42</sub> oligomers after size exclusion chromatography (SEC). After cross-linking of amyloid- $\beta$  (A $\beta$ )<sub>42</sub> with or without retinoic acid, tris(2,2'-bipyridyl)dichlororuthenium(II) hexahydrate (Ru(bpy)) and ammonium persulfate were removed by SEC. The resulting products were analyzed by SDS-PAGE on a 10–20% gradient SDS gels. Bands were visualized using silver staining. Lane 1, A $\beta$ <sub>42</sub> alone (un-cross-linked); lane 2, A $\beta$ <sub>42</sub> alone (cross-linked) before SEC; lane 3, A $\beta$ <sub>42</sub> alone (cross-linked) after SEC; lane 4, A $\beta$ <sub>42</sub> with retinoic acid (250  $\mu$ M) before SEC; and lane 5, A $\beta$ <sub>42</sub> with retinoic acid (250  $\mu$ M) after SEC. Each gel is representative of each of three independent experiments.

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Supplementary Figure 2. SDS-PAGE of  $A\beta$  cross-linked with retinoic acid, retinol, retinal, or  $\beta$ -carotene. Photo-induced cross-linking of unmodified proteins (PICUP), which was followed by SDS-PAGE and silver staining, was used to determine the effects of 0, 25, 50, 100, 150, and 250 retinoic acid, retinol, retinal, or  $\beta$ -carotene on oligomerization of  $A\beta_{40}$  (A) or  $A\beta_{42}$  (B). Lane 1,  $A\beta$  alone (un-cross-linked); lane 2,  $A\beta$  alone (cross-linked); lane 3,  $A\beta$  with retinoic acid (25  $\mu$ M); lane 4,  $A\beta$  with retinoic acid (50  $\mu$ M); lane 5,  $A\beta$  with retinoic acid (100  $\mu$ M); lane 6,  $A\beta$  with retinoic acid (150  $\mu$ M); lane 7,  $A\beta$  with retinoic acid (250  $\mu$ M); lane 8,  $A\beta$  with retinol (25  $\mu$ M); lane 9,  $A\beta$  with retinol (50  $\mu$ M); lane 10,  $A\beta$  with retinol (100  $\mu$ M); lane 11,  $A\beta$  with retinol (150  $\mu$ M); lane 12,  $A\beta$  with retinol (250  $\mu$ M); lane 13,  $A\beta$  with retinal (25  $\mu$ M); lane 14,  $A\beta$  with retinal (50  $\mu$ M); lane 15,  $A\beta$  with retinal (100  $\mu$ M); lane 16,  $A\beta$  with retinal (150  $\mu$ M); lane 17,  $A\beta$  with retinal (250  $\mu$ M); lane 18,  $A\beta$  with  $\beta$ -carotene (25  $\mu$ M); lane 19,  $A\beta$  with  $\beta$ -carotene (50  $\mu$ M); lane 20,  $A\beta$  with  $\beta$ -carotene (100  $\mu$ M); lane 21,  $A\beta$  with  $\beta$ -carotene (150  $\mu$ M); and lane 22,  $A\beta$  with  $\beta$ -carotene (250  $\mu$ M). Each gel is representative of each of three independent experiments.