35. H. Stieve und G. Lumme. Double Cross-Reaction of the *Sepia* G-Protein. (RWTH Aachen, Institut für Biologie II (Zoologie), Kopernikusstr. 16, 5100 Aachen, FRG)

Antisera raised against synthetic peptides of short (16 and 17 amino-acid residues), preserved, constant sequences of G_α subunits ($G_{a\text{-commen}}$) and G_β subunits ($G_{\beta\text{-peptid}}$) bind to two polypeptides with the apparent molar masses 44 kD (G_α) and 36 kD (G_β) of *Sepia* photosensoric membrane preparations. Antisera raised against native bovine transducin do not cross-react with this invertebrate G-protein (Conen and Stieve, 1987; Conen *et al.*, 1989). In further experiments the 44 kD protein (G_α) of the photosensoric membranes of *Sepia* was radiolabeled by ADP-ribosylation only by cholera toxin but not by pertussis toxin (Conen and Stieve, 1987).

In contrast to antisera against native transducin, an antiserum raised against heat-denatured bovine transducin cross-reacts with the G-protein from *Sepia* which is presumably involved in the phototransduction process. This antiserum recognizes the same 44 kD (G_α) and 36 kD (G_β) protein band from *Sepia* photosensory membrane preparations. This indicates similar sites in the *Sepia* G-protein and the bovine transducin protein, which may be made accessible by heat-denaturation.

Furthermore, we purified this antibody-binding G-protein by binding it to light-activated *Sepia* rhodopsin and solubilizing the G-protein from the membrane by addition of GTP-containing buffer solution, adopting the method of Kühn for the purification of cattle transducin (Kühn, 1980). This indicates that this G-protein is probably involved in the phototransduction process.

The purified G-protein binds also to the vertebrate photosensoric membrane upon illumination, but cannot be eluated by GTP-containing buffer solution. The binding was reversible only after bovine rhodopsin was bleached (i.e., after extensive illumination leading to the dissociation of retinal from the opsin moiety).

These experiments show in addition to the described immunological cross-reaction, a "functional" cross-reaction of extreme attachment between *Sepia* G-protein and vertebrate photosensoric membrane.

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