

Axiogenic-like effects and reduced stereological counting of immunolabelled 5-hydroxytryptamine₆ receptors in rat nucleus accumbens by antisense oligonucleotides

A. Otano,¹ D. Frechilla,¹ A. Cobreros,¹ L. M. Cruz-Orive,² A. Insausti,²
R. Insausti,³ M. Hamon⁴ and J. Del Rio¹

¹Department of Pharmacology, University of Navarra Medical School, 31008 Pamplona, Spain

²Department of Mathematics, University of Cantabria, Santander, Spain

³Department of Anatomy, School of Medicine, University of Castilla-La Mancha, Albacete, Spain

⁴INSERM U288, School of Medicine Pitié-Salpêtrière, 75634 Paris, Cedex 13, France

Abstract of:

Neuroscience Vol. 92, No. 3, pp. 1001-1009, 1999

The physiological role of 5-hydroxytryptamine₆ receptors in the central nervous system has not yet been elucidated. The high affinity of various psychotropic drugs for 5-hydroxytryptamine₆ receptors has led to the suggestion that this receptor type may be a novel target in neuropsychiatry. We have found that continuous intracerebroventricular administration of a 5-hydroxytryptamine₆ receptor antisense oligonucleotide, but not of a missense oligonucleotide, produced an anxiogenic-like response in rats using two different models of anxiety, the social interaction test and the elevated plus-maze. Neither oligonucleotide treatment modified locomotor activity, rectal temperature or food intake, suggesting a low or null neurotoxicity. The

effectiveness of the treatment with the designed antisense oligonucleotide to block the synthesis of the protein encoded by the target mRNA was assessed by immunolabelling 5-hydroxytryptamine₆ receptors in the nucleus accumbens, where this receptor is highly expressed, using previously characterized specific antibodies. The density of the immunostaining was quantified by means of an unbiased three-dimensional stereologic procedure, which revealed a significant reduction (-25%) in the number of immunolabelled neuronal elements. These results suggest that, in addition to other 5-hydroxytryptamine₆ receptor subtypes, 5-hydroxytryptamine₆ receptors in the nucleus accumbens may participate in anxiety-related neurobiological mechanisms.
Key words: anxiety, 5-HT₆ receptor, antisense oligonucleotide, nucleus accumbens, stereology.

Identification of a 36kDa olive-pollen allergen by in vitro and in vivo studies

A. Martínez, J.A. Asturias, R. Palacios, M.L. Sanz, G. Sánchez, A. Oehling, J. Martínez

Abstract of:

Allergy 1999, 54, 584-592.

Background: Ole e 1 has been considered the major allergen of olive (*Olea europaea*) pollen. Some other relevant allergens (Ole e 2, 3, 4, and 6) have been recently described. This work aimed to study the IgE-binding frequency of a 36-kDa protein from *O. europaea* pollen in a large population of olive-allergic patients, its allergenic reactivity in vivo, and its presence in olive pollens of different origin, as well as in other relevant allergenic pollens.

Methods: Identification of IgE-binding components from *O. europaea* pollen extracts was elucidated by inhibition of SDS-PAGE immunoblotting using recombinant profilin (Ole e 2) and Ole e 1 molecules. The IgE-binding frequency of the 36-kDa protein was estimated by Western blot in a sample of 120 sera from olive-allergic patients. The cutaneous test with the 36-kDa protein was performed by intradermoreaction in allergic patients and control subjects.

Results: Exactly 83% of the sera from *O. europaea*-allergic patients recognized a protein with an apparent molecular weight of 36 kDa, under reducing conditions. It was detected by sera from monosensitized and polysensitized patients, showing a higher IgE frequency than the major allergen Ole e 1 (59%) and the minor profilin (Ole e 2) allergen (27%). Similar reactivity rates (79%) was found by intradermal test. Extracts from olive pollens collected in California presented a much higher amount (around 16-fold on average) of the 36-kDa protein than those from pollens of Spanish origin. The presence of similar allergens was detected only in closely related species (*Syringa*, *Fraxinus*, *Ligustrum*), and not in other common allergenic pollens.

Conclusions: The 36-kDa protein constitutes a major allergen for olive-sensitized patients, but it is not equally represented in *O. europaea* pollens of different origins.

Key words: immunoblot inhibition; *Olea europaea* allergens; Ole e 1; Ole e 2; Ole e 4; olive-pollen allergy; profilin; SDS-PAGE immunoblotting.