

ORIENTATIONAL BEHAVIOR OF ANIMALS WITH THE GEOMAGNETIC FIELD AND MECHANISMS OF MAGNETORECEPTION

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Abstract. Contemporary data on the orientation and navigation of animals from different taxa with the geomagnetic fields are considered in the review. The mechanisms of magnetoreception in animals are described. In this regard, several taxa of fishes are able to perceive magnetic fields via electroreceptors. A number of animals can sense the polarity of magnetic fields via sensory cells with iron-comprising crystals. In addition, animals from different taxa are able to perceive inclination of magnetic fields via the changes in singlet and triplet yields of radical-pair reactions under magnetic influence. In the last mentioned case the molecules of cryptochrome may play a crucial role. It is considered that the cryptochrome when exciting by the short-wave light may produce long-life radical pairs affected by the geomagnetic field.

Keywords: magnetoreception, orientational behavior, electroreceptors, magnetite, radical pairs, cryptochrome.