
MA 30: Invited Talk Margaret Ahmad

Time: Friday 10:15–10:45

Location: H10

Invited Talk

MA 30.1 Fri 10:15 H10

Response of plants and animals to magnetic fields with cryptochrome, a field sensitive blue light photoreceptor —

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Birds are known to use a light-dependent magnetic compass that is based on a radical pair mechanism. The cryptochrome blue light photoreceptor of birds is postulated to form the radical pairs and there-

fore function as magnetic field sensor. Cryptochromes are found not only in birds, but also in higher plants, where they mediate a number of blue-light dependent developmental and growth responses. Upon absorption of blue light, cryptochrome 1 of Arabidopsis generates radical pairs, suggesting the possibility that cryptochrome-controlled responses in plants could also be affected by magnetic fields. Here we report an increased plant growth response to blue light in the model plant Arabidopsis thaliana in the presence of a 500 microT magnetic field. Therefore, the plants can respond to magnetic field in a way that depends on the function of the plant cryptochrome photoreceptor. These results support the possibility that magnetic field may be sensed by cryptochrome in migratory birds.