変態時の特定タンパク合成に対するエクジソンとJHの作用

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1988 Fiscal Year Final Research Report Summary

Effects of ecdysone and juvenile hormone on the syntheis of specific proteins

Research Project

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62540541

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Grant-in-Aid for General Scientific Research (C)

Allocation Type

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動物発生・生理学

Research Institution

Kanazawa University, Faculty of Science

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Ecdysone / Juvenile hormone / JH / lectin-like protein / ecdysone receptor / metamorphosis / silkworm

Research Abstract

Effects of ecdysone and jevenile hormone on the synthesis of lectin-like protein, ecdysone receptor protein and prothoracicotropic hormone were studied in larvae and pupae of Bombyx silkworm. The lectin-like protein appeared in hemolymph just before 4th ecdysis and soon after the gut purge in the 5th instar. Change of titer of this protein is almost parallel to the change of ecdysone titer. This protein is of a strong hemagglutinin activity. Using this reaction, the protein was isolated and identified. Molecular weight is about 350KD, and it is thought as a tetramer of 88KD and 90KD polypeptide. Sugers, particularly, glucronic acid, inhibit hemagglutinin activity.
Ecdysone receptor protein was isolated from the imaginal wing discs of Bombyx silkworm. Using radioactive Ponasterone A, binding coefficeient to ecdysteroid was determined as 4.1 or 4.3 nM. Molecular weight of the receptor protein was 2.7KD and 6.0KD. To fishing out of the receptor gene from

genomic library of the silkworm, a common DNA binding domain of steroid hormones were selected and 15 sequences of common DNA sequence was synthesized. Change of amount of this protein in imaginal discs was studied through 5th instar larve. However, in terms of binding activity/g total protein was almost constant with some fluctiation.
Change of ecdysone titer and development of imaginal discs were studied diapuse- and nondiapause-destined culture of the flesh fly. In diapause-destined larvae and prepupae, ecdysone content increased just after pupariation and then decreased to almost undetectable level before pupation. However, in nondiapause-destined larvae second increase of ecdysone content was observed several hours before pupation. Pupal development of imaginal discs was earlier in nondeapause-destined animals than deapause-destined ones, although pupation time was almost same between them.

Research Products (12 results)

All Other

All Publications (12 results)

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