Volume 50(3-4):161, 2006
Acta Biologica Szegediensis
http://www.sci.u-szeged.hu/ABS

DISSERTATION SUMMARY

Atilla, the novel GPI-anchored lamellocyte antigen, affects melanotic tumor formation in *Drosophila*

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Since the discovery of the homologous vertebrate signalling pathways, *Drosophila melanogaster* (fruit fly) serves as one of the major model organism in studies of innate immunity. The cellular arm of the *Drosophila* immune reaction includes the phagocytosis and the encapsulation reactions, the latter resembling the granuloma formation in vertebrates. During the encapsulation reaction the foreign bodies which are to large to be phagocytosed – for example eggs of parasites - will be separated and inactivated. To study the molecular events leading to encapsulation we started to analyze cell surface antigens of the major effector cell in this reaction, the lamellocyte. We identified the first surface antigen specific to these cells, dubbed Atilla, by combining an immunological and a reverse genetic approach. The HPLC analysis of the isolated 16 kDa protein identified a *Drosophila* gene. The analysis of cell specific expression of *atilla* gene proved lamellocyte-specificity in larval stages. The involvement of the molecule is suggested by its association with lipid rafts. Atilla antigen shows structural similarity to GPI-anchored receptor molecules in the family of Ly6/u-PAR, having a pivotal role in tumor invasion and metastasis. We established loss of function mutants for *atilla* gene, by P-element mobilization. Analysis of the homozygote viable mutants revealed a genetic interaction between a tumor suppressor mutation and the loss of function mutation in the *atilla* gene resulting in a drastically decreased tumorous phenotype.

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