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A Thorough Transcriptome Reveals the Toxicity of Cadmium and A Brand-New Metallothionein in Silkworms

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Abstract

Global heavy metal contamination has grown signifcantly in importance. The fact that heavy metals are absorbed by soil and have an impact on practically all organisms through biological cycles contributes to its broad scope. Through the soil-mulberry-silkworm system, heavy metal poisoning of silkworms (Bombyx mori) prevents larval growth and development and reduces silk production. In the current study, we used transcriptome sequencing of larval midguts exposed to cadmium to investigate the toxicological mechanism of the heavy metal. We discovered that endocytosis, oxidative phosphorylation, and MAPK signalling are three potential pathways that may be involved in cadmium i a i χ cadmium. This study found and functionally validated BmMT, providing a novel possible heavy metal-tolerant silkworm type, and revealed a mechanism for cadmium toxicity.

Keywords:

Introduction

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Cell lines and a strain of silkworm

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Discussion

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Conclusion

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Acknowledgement

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Conflict of interest statement

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