



FACULTY OF VETERINARY MEDICINE  
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# Proteomic analysis of *Taenia* spp. excretion/secretion proteins: the search for *Taenia solium*-specific diagnostic antigens

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Proefschrift voorgedragen tot het behalen van de graad van  
Doctor in de Diergeneeskundige Wetenschappen, 2014

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*“I may not have gone where I intended to go, but I think I have ended up where I needed to be.”*

– Douglas Adams, *The Long Dark Tea-Time of the Soul* (1988).



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## Acknowledgements

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# CHAPTER 1

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## General Introduction

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*Taenia solium*: An Introduction

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## 2.1 *Taenia solium* taeniasis and cysticercosis

*Taenia solium* is a tapeworm belonging to the Taeniidae family (Figure 2.1). The adult stage of the worm (Linnæus, 1758) develops in the upper third section of the small intestine of humans, the only final host, where it causes an infection called taeniasis (Figure 2.2).

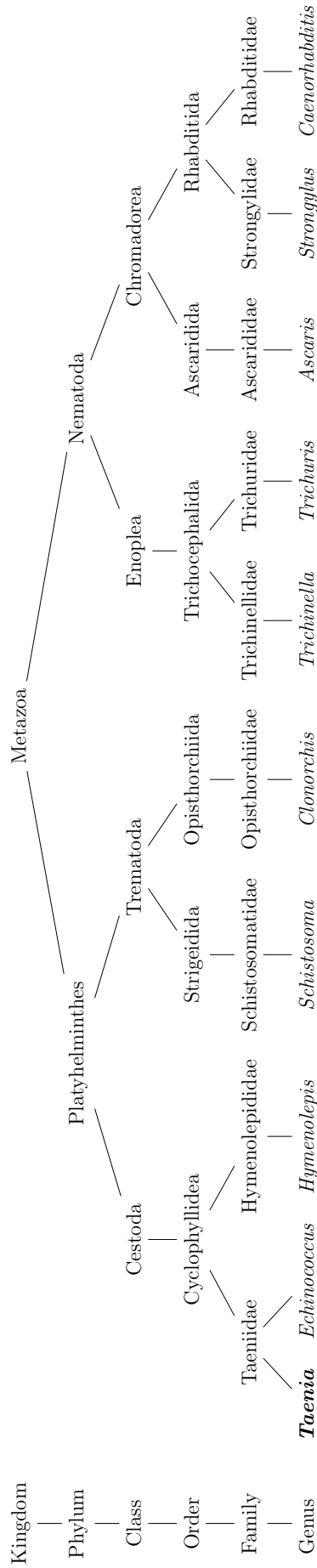
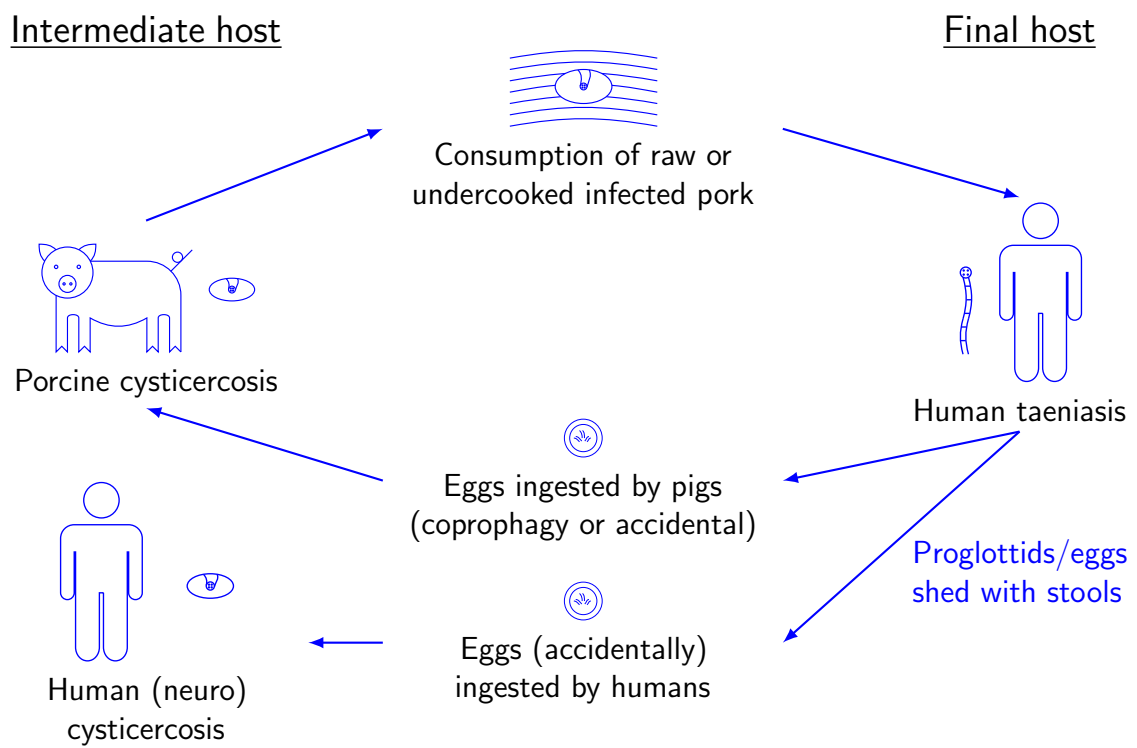


Figure 2.1: text





**Figure 2.2:** text



The Hitchhiker's Guide to Proteomics<sup>1</sup>

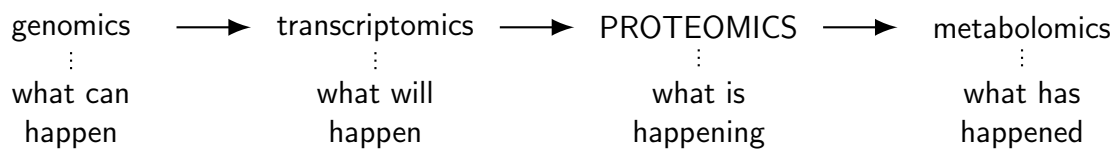


Figure 3.1: text

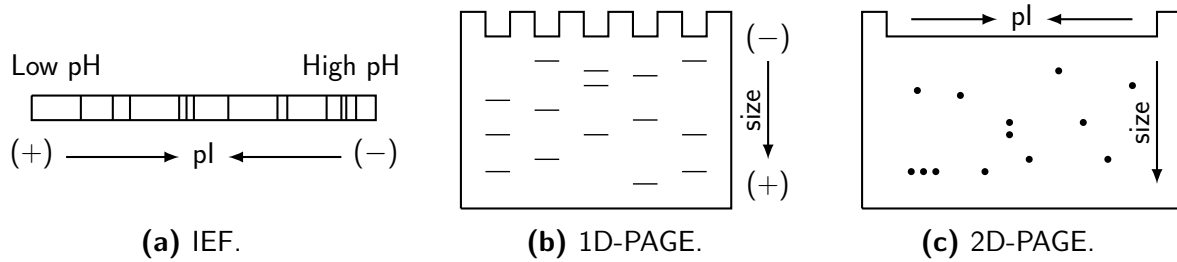


Figure 3.2: text

<sup>1</sup>Title adapted from the novel "The Hitchhiker's Guide to the Galaxy", written by Douglas Adams and published by Pan Books in 1979.

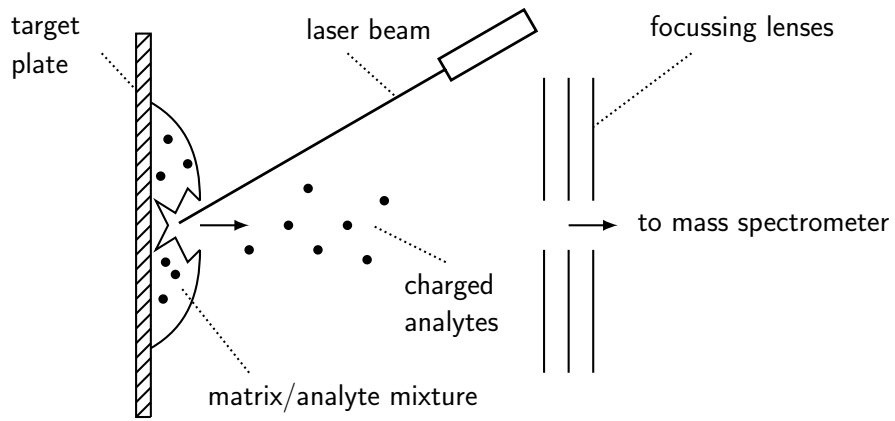


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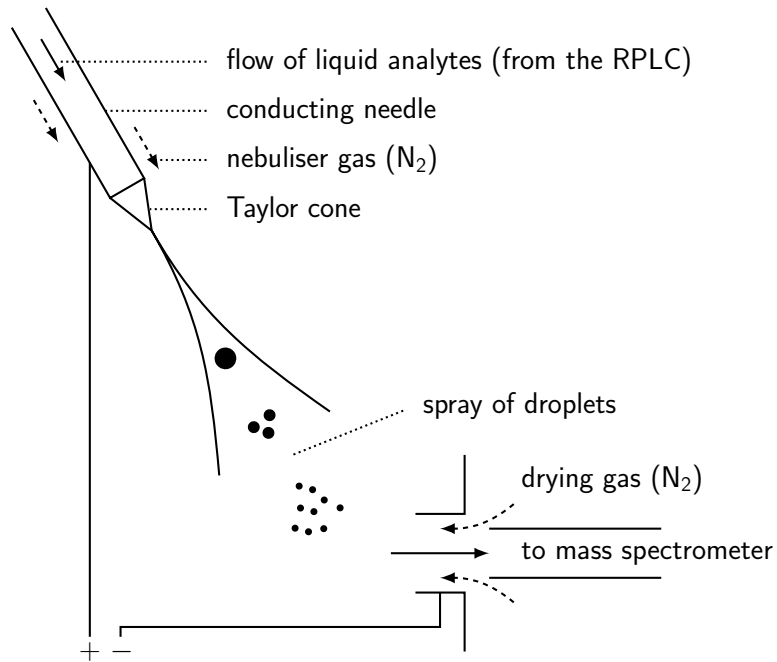


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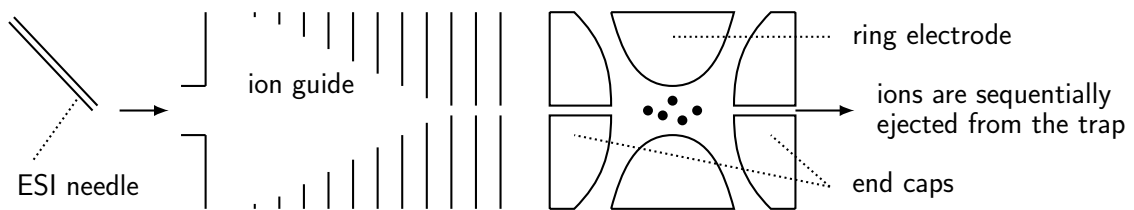


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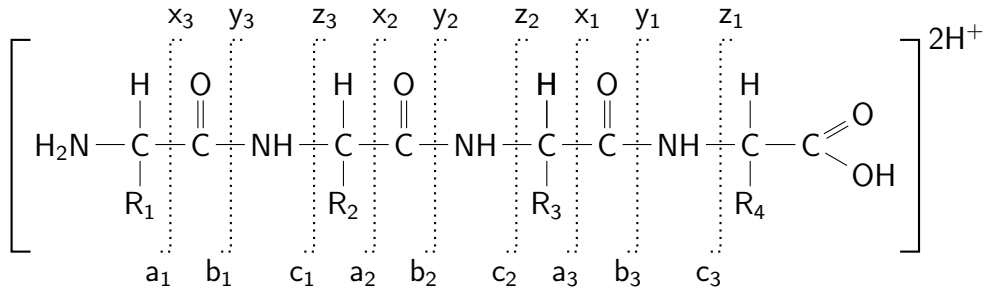


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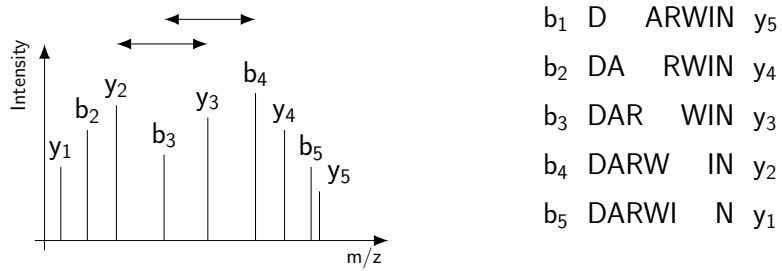


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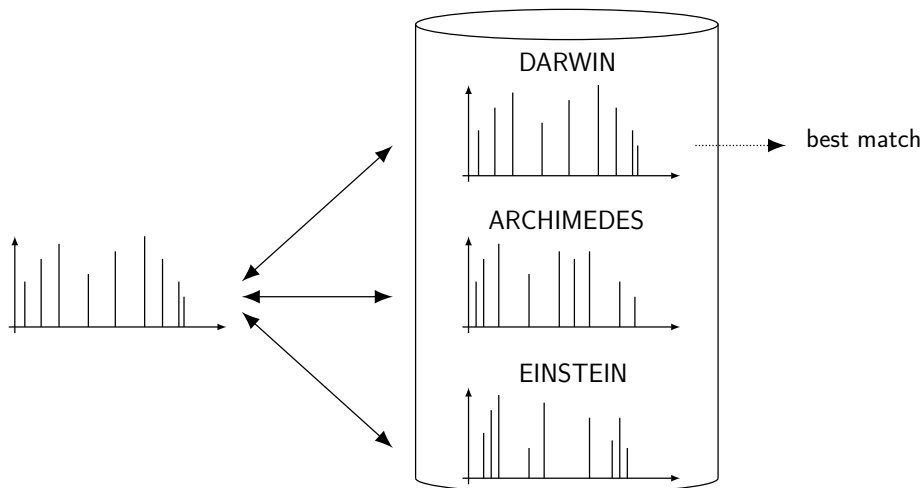


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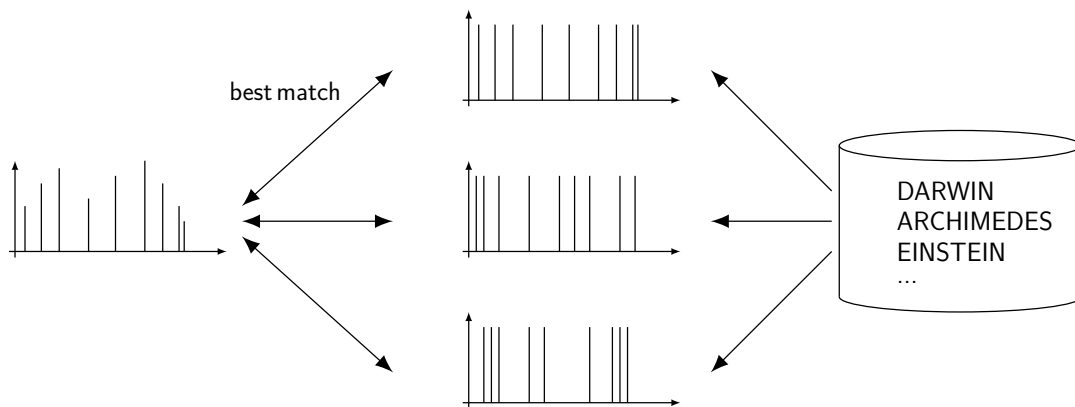


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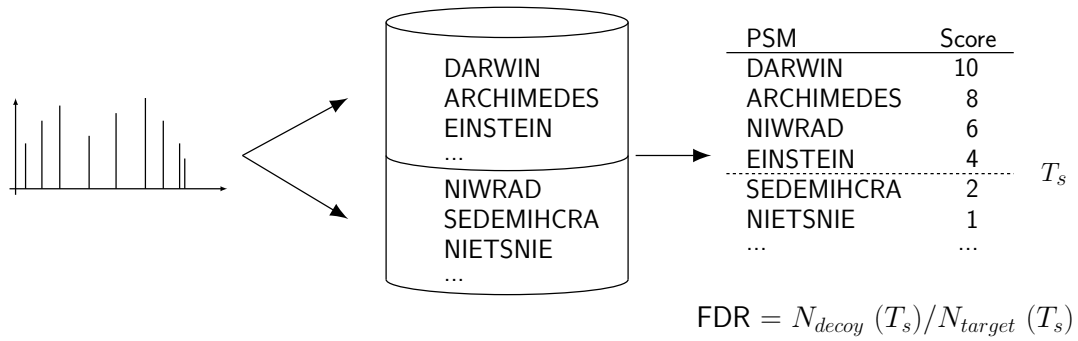
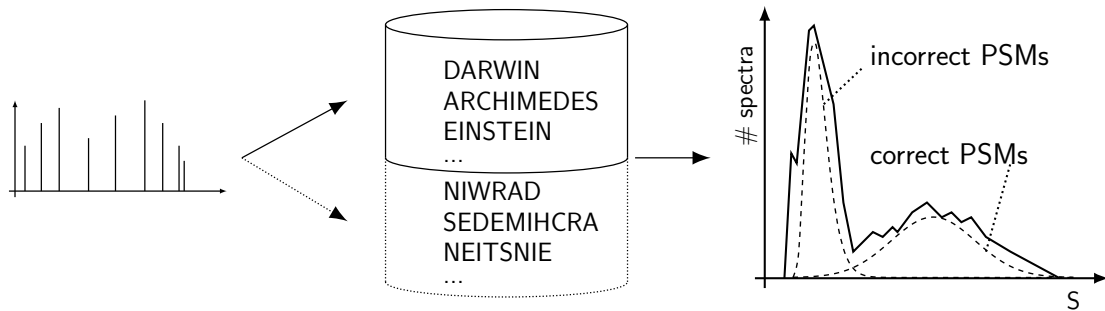


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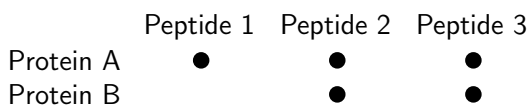


$$FDR = N_{inc}(P_T) / N(P_T)$$

$$N_{inc}(P_T) = \sum_{x|P_x \geq P_T} (1 - P_x)$$

$$N(P_T) = \sum_{x|P_x \geq P_T} 1$$

Figure 3.11: text



- 1 a. Prob Protein A = 1
- Peptide 1 → w = 1
- Peptide 2 → w = 1
- Peptide 3 → w = 1

- 1 b. Prob Protein B = 0
- Peptide 2 → w = 0
- Peptide 3 → w = 0

Figure 3.12: text

## CHAPTER 4

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### Rationale and Objectives

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# Partially Sequenced Organisms, Decoy Searches and False Discovery Rates

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**Abstract:** text

Adapted from:

**Victor, B.**, Gabriël, S., Kanobana, K., Mostovenko, E., Polman, K., Dorny, P., Deelder, A. M., and Palmblad, M. Partially Sequenced Organisms, Decoy Searches and False Discovery Rates. *Journal of Proteome Research* 11, 3 (2012), 1991–1995.

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### Proteomic Analysis of *Taenia solium* Metacestode Excretion/Secretion Proteins

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**Abstract:** text

Adapted from:

**Victor, B.**, Kanobana, K., Gabriël, S., Polman, K., Deckers, N., Dorny, P., Deelder, A. M., and Palmblad, M. Proteomic Analysis of *Taenia solium* Metacestode Excretion/Secretion Proteins. *Proteomics* 12, 11 (2012), 1860–1869.

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### Use of Expressed Sequence Tags for the Identification of *Taenia solium* Metacestode Excretion/Secretion Proteins

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**Abstract:** text

Adapted from:

**Victor, B.**, Dorny, P., Kanobana, K., Polman, K., Lindh, J., Deelder, A. M., Palmblad, M., and Gabriël, S. Use of Expressed Sequence Tags as an Alternative Approach for the Identification of *Taenia solium* Metacestode Excretion/Secretion Proteins. *BMC Research Notes* 6, 1 (2013), 224.

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## CHAPTER 8

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### The Search for Differential Proteins

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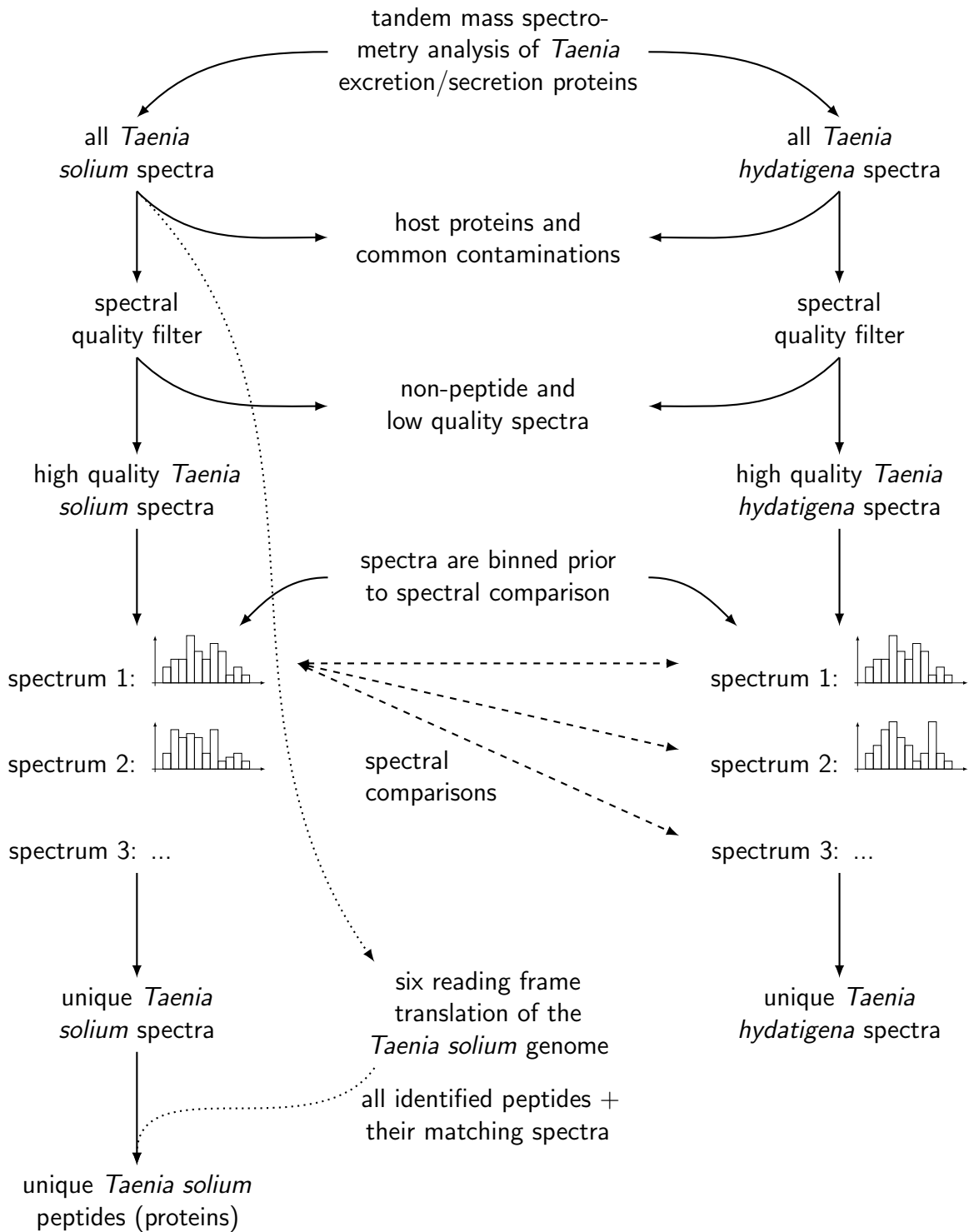


Figure 8.1: text



## CHAPTER 9

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### General Discussion

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## CHAPTER 10

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### Bibliography

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Linnæus, C., 1758. *Systema naturæ per regna tria naturæ, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis*, 10th Edition. Vol. 1. Laurentii Salvii (Holmiae).



# CHAPTER 11

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Summary

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# CHAPTER 12

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## Samenvatting

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Appendix

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