

Cover Page



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On the Evolution of Genetic Diversity in RNA Virus Species

Uncovering barriers to genetic divergence
and gene length in picorna- and nidoviruses

Chris Lauber

front cover: 'Out-of-the-box'. Genome sizes of ssRNA+ virus species are shown along a logarithmic spiral which reaches from 2 to 32 kilobases. The size ranges of picorna- and nidoviruses (light-colored balls) are indicated through yellow and turquoise shading, respectively. Concept by A.E. Gorbalenya; developed and implemented by C. Lauber using *R*.

back cover: 'Perspective'. The text content of each page of the eight chapters in this thesis is shown. Inspired by a project of Ben Fry at his web site; implemented by C. Lauber using *Processing*.

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Uncovering barriers to genetic divergence and gene length in
picorna- and nidoviruses

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"Nothing in biology makes sense except in the light of evolution."

Theodosius G. Dobzhansky, 1973

Table of contents

List of abbreviations	8
Samenvatting	9
Outline of this thesis	10
Chapter 1 General Introduction	11
UNCOVERING BARRIERS TO GENETIC DIVERGENCE OF RNA VIRUSES	
Chapter 2 Partitioning the Genetic Diversity of a Virus Family: Approach and Evaluation through a Case Study of Picornaviruses <i>Journal of Virology (2012)</i>	23
Chapter 3 Toward Genetics-Based Virus Taxonomy: Comparative Analysis of a Genetics-Based Classification and the Taxonomy of Picornaviruses <i>Journal of Virology (2012)</i>	51
Chapter 4 Mesoniviridae: a proposed new family in the order <i>Nidovirales</i> formed by a single species of mosquito-borne viruses <i>Archives of Virology (2012)</i>	71
UNCOVERING BARRIERS TO GENE LENGTH IN RNA VIRUSES	
Chapter 5 Discovery of the First Insect Nidovirus, a Missing Evolutionary Link in the Emergence of the Largest RNA Virus Genomes <i>PLoS Pathogens (2011)</i>	81
Chapter 6 The footprint of genome architecture in the largest genome expansion in RNA viruses <i>manuscript in preparation</i>	119
Chapter 7 Origin and Evolution of the <i>Picornaviridae</i> Proteome <i>The Picornaviruses (2010)</i>	149
Chapter 8 General Discussion	169
References	181
Acknowledgments	211
Curriculum vitae	213
Other publications	215

List of abbreviations

A	adenine
aa	amino acid(s)
C	cytosine
CO ₂	carbon dioxide
DNA	deoxyribonucleic acid
dsDNA	double-stranded DNA
dsRNA	double-stranded RNA
G	guanine
HMM	Hidden Markov Model
ICTV	International Committee on Taxonomy of Viruses
kb	kilobases
ML	maximum likelihood
mRNA	messenger RNA
NCBI	National Center for Biotechnology Information
NTP	nucleoside triphosphate
nt	nucleotide(s)
ORF	open reading frame
RNA	ribonucleic acid
ssDNA	single-stranded DNA
ssRNA+	single-stranded positive-sense RNA
ssRNA-	single-stranded negative-sense RNA
T	thymine
U	uracil
UTR	untranslated region