

# Subject Index

## A

abortion, spontaneous 20  
acute viral myocarditis 299  
adenine nucleotid translocator 264  
adenovirus type 2 212  
adhesion molecules 297  
adsorption 211  
adult polymyositis 20  
agammaglobulinemia 25, 65  
alignments 173  
amyotrophic lateral sclerosis 19  
animal experiments 46, 47  
anti-idiotypic antibodies 274  
antibody  
– determination 72  
– escape mutant 236  
antigen detection 70  
antiviral therapy 74  
antivirals 251  
aseptic meningitis 58  
atherogenic diet 82  
attachment 211  
attenuation 250  
autoantibodies 260, 284, 288  
autoimmunity 289  
azathioprine 288

## B

2B coding region 237  
basetriplets 178  
Bornholm disease 67

branched chain keto acid dehydro-  
genase 264  
bronchopneumia 66

## C

canyon hypothesis 193, 210  
capsid 155, 156  
capsid proteins 98, 246  
– VP1 (1D) 98, 104  
– VP2 (1B) 98, 104, 105  
– VP3 (1C) 98, 105  
– VP4 (1A) 98, 103  
cardiac myosin 264  
cardiomyopathy (see also myocarditis)  
262  
– dilated 228, 283, 299  
cardiopathologic antibodies 262  
cardiovirulence 45, 46, 234  
cardioviruses 248, 249  
carditis 17  
CD55 160  
cDNA, infectious 229, 241  
children  
– aseptic meningitis 62–65  
– encephalitis 62–65  
– disease in 53–74  
– illness duration 63  
– prognosis 63  
– systemic illness, risk for severe 62  
chimeric viruses 229, 234, 242, 251  
chronic fatigue syndrome 19  
chronic myopathies 19

- compensatory base pair mutation 173, 186
- complement fixation 72
- consensus structure 186
- coxsackievirus virulence, genetics 227–251
- coxsackieviruses, taxonomy 1–3
- coxsackieviruses of group A 2, 66, 69
- coxsackieviruses of group B (CVB) 2
  - avirulent 250
  - phenotypes 245, 246
  - binding site for specific cellular receptors 4
  - cellular receptors 209
  - CVB2 99, 116, 122, 245
    - serotypes 117
  - CVB3 98, 118, 122, 123, 182–186, 191f., 261
    - amino acid sequence 196
    - atomic model 196
    - cardiovirulence 182, 234
    - 5' NTR 185
    - nucleotide 234 182–184
      - mutations 185
    - replication efficiency 182
    - serotypes 117
    - structure 191–206
      - capsid proteins 198–202
    - surface-exposed residues 128
    - surface topology 203
    - threedimensional structure 244
  - CVB4 131–150, 240
  - CVB5 69, 153–165
    - antigenically related to SVDV 154f.
    - capsidstructures 160
    - first isolation 153
    - host range 155
    - higher order structures of nontranslated region RNA 169–187
    - polypeptide patterns 162
    - variation 162
  - epidemiology 13f.
  - genetic divergence 97–150
    - genome length 98
    - human diseases 4–6
    - induced disease, role of humoral response 259–274
    - infections 70
      - diagnosis 70
      - isolation 70
    - meningitis 62
    - pathogenicity for newborn outbred mice 3
    - properties 3
    - RNA genome 3, 4
    - serotype 98, 245
    - strain 98
    - strains, naturally occurring 250
- cyclosporin A 288
- cytokines 267, 286
- cytosine-rich pyrimidine tract 102

## D

- Dallas histological criteria 36
- demyelination 249
- dermatomyositis 68
  - juvenile 20
- diabetes mellitus 18
  - insulin-dependent 238, 260
  - viral-induced-insulin-dependent (IDDM) 5
- diabetogenic phenotype 241
- dilated cardiopathy 299
- N,N'-diphenyl-p-phenylenediamin (DPPD) 88
- disease in children 53–74
- dot matrix histogram 177
- double helix 172
- DPPD (see N,N'-diphenyl-p-phenylene-diamin)
- drug binding pocket 193
- dynamic programming algorithm 175

**E**

- E2 99
- echovirus 6 215
- echovirus 7, cellular receptor for 215
- eclipse 212
- encephalitis 64
  - focal 64
  - global 64
- enteric illness 68
- enterovirus 3
  - infections 23
  - monoclonal antibodies 71
- epidemiology 13–26
  - endemic incidence 14
  - epidemic incidence 14
- epitopes 22
  - shared with CVB3 269
- etiologic association 16
- EV 9 viruses 163
- exanthems 69
- exercise 90

**F**

- febrile seizures 63
- fetal
  - demise 19, 20
  - infection 56
  - loss 56
- fish oil 88
- free-energy data 173
- functional domains 186

**G**

- GAD (see glutamic acid decarboxylase)
- gastrointestinal illnesses 68, 69
- gene regulation 177
- genetic
  - algorithm 175
  - variants 23
- genotype 15, 86

- glutamic acid decarboxylase (GAD) 266

**H**

- hairpin algorithms 174
- hand washing 60
- hand-foot-and-mouth disease 69
- heart disease (see also cardio-myopathie) 31–48
  - inflammatory 19
  - mechanisms of disease 46, 47
  - virus-induced 5
- heart tissue antigens 264
- hemagglutination inhibition 72
- hepatitis 4, 59
- herpangina 66
- heterotypic response 15
- HR1 215
- HR2 215
- human enteroviruses 3
- hydrophobic pocket 193
- hypercholesterolemic diet 82

**I**

- icosahedral viruses 192
- IDDM (see diabetes mellitus, viral-induced-insulin-dependent)
- idiopathic dilated cardiomyopathy 262
- IgM 22, 34, 37, 39, 40, 42, 43, 46
  - assays 72
  - in dilated cardiomyopathy 42, 43
  - in myocarditis 37, 39, 40
  - in pericarditis 45, 46
- immune response 24
- immunosuppression 288
- immunosuppressive therapy 299
- in situ hybridization 34, 35, 37, 44
  - in dilated cardiomyopathy 44
  - in myocarditis 37
- in situ PCR 34, 35, 37, 38, 41, 44

- in dilated cardiomyopathy 44
- in myocarditis 37, 38, 41
- infants
  - acute CNS complications 62
  - aseptic meningitis 61
  - undifferentiated fever 61, 62
- infections, treatment 25
- inflammatory
  - heart disease 228
  - muscle disease 20
- integrin 212
- interference assays, virus attachment 211
- interferon- $\gamma$  271, 286f.
- interleukin
  - IL1 271
  - IL2 286
  - IL4 286
- internal ribosome entry site (IRES) 170
- intrauterine transmission 57
- ion binding sites 204
- IRES (see internal ribosome entry site)
- islet cell cytoplasmic (ICA) auto-antigens 266

**J**

- juvenile dermatomyositis 20
- JVB Benschoten strain 99, 131

**K**

- Keshan disease 83–85
  - epidemiology 84
- knob surface protection 138

**L**

- LBM pools 71
- loop destabilizing energies 173

- low pH resistance 3
- lymphocyte 293

**M**

- malnutrition 82
- marasmus 82
- meningitis, aseptic 16, 59, 62–65
- meningoencephalitis 59
  - chronic 65
- mice 261
- molecular
  - mimicry 268
  - probes 70
- multiple hairpin prediction 174
- murine myocarditis 228
  - and T cells 285–290
- muscle disease, inflammatory 20
- myocardial
  - damage 84
  - disease 270f.
- myocarditis (see also heart disease)
  - 59, 60, 81–94, 228, 260, 283
  - acute viral 299
  - chronic 265
  - clinical diagnosis 272
  - immunopathogenic 285
  - murine 228
    - T cells 285–290
- myopathies, chronic 19
- myristate 196

**N**

- neonatal CVB infections 17, 54–61
  - age-related susceptibility 55
  - clinical manifestations 58
    - hepatitis 59
    - meningoencephalitis 59
    - meningitis, aseptic 59
    - myocarditis 59
    - mortality 59
    - pneumonitis 60

- immune response 55
- incidence 54
- infection by postnatal transmission 54, 58
- infection by vertical transmission 54f., 57
- maternal infections 58
- nosokomial 58
- passively transferred maternal antibody 58
- prevention 60, 61
- symptom onset 57
- treatment 60
- – intravenous immune globulin (IVIG) 60
- neurologic abnormalities 63
- neurovirulent 247, 248
- neutralization 72
- noncardiovirulent CVB3/0 genome 231
- nonstructural proteins 98, 107–109, 111–113, 116
  - coding regions 106–116
  - VPg 98
- 5' nontranslated region (5' NTR) 98, 170, 229, 242, 246
- nucleic acid probes 21
- nucleolin 221
- nucleotid binding (NTP-B) motif 109
- nucleotid changes 88
- nucleotide 234 231
- nutritional
  - antioxidants 81–94
  - deficiencies 237

## O

- optimal folding 174
- oxidative stress 88–91

## P

- P1 regions 126, 242
- P2 regions 106, 107
- P3 regions 106, 107, 116, 129
- palmitate molecule 198
- pancreatitis 4, 238, 239, 242
- paralytic myelitis 65
- PCR 21, 33–35, 37, 38, 40, 41, 44, 71, 116
  - in dilated cardiomyopathy 44, 45
  - in myocarditis 37, 38, 40, 41
- PEG-catalase 89
- peptides 290
- persistent virus replication 261
- phenotype, changed 88
- phylogenetic
  - analysis 173
  - comparison 176
- picornaviruses 192
  - cellular receptors 211
- placenta 56
- pleurodynia 67
- pneumonia 66
- pneumonitis 60
- pocket factor 193
- poliovirus 107, 178–182, 246–248
  - capsid region 248
  - coding region 247
  - comparative sequence analysis 181
  - internal ribosome entry site 180
  - neurovirulence 180
  - 5' NTR 180, 181
  - ribosomal landing pad 180
  - RNA secondary structure 180
- polymyositis 68
  - adult 20
- prednisone 288
- pregnancy 55, 56
- pro-inflammatory response 262
- protein coding region 98
- protein translation 231
- protein-RNA interactions 187
- pseudoknot 175, 177

**R**

RCA (see regulators of complement activation)  
 recombination 23  
 recursive programs 174  
 regulators of complement activation (RCA) 216  
 rhabdomyosarcoma cells, human 213  
 rheumatologic  
 – diseases 68  
 – symptoms 65  
 ribosomal landing pad (RLP) 170  
 RLP (see ribosomal landing pad)  
 RmcA 214  
 RmcB 215  
 RNA  
 – chemical structure 171  
 – fingerprints 162  
 – higher order structures 169–187  
 – secondary interactions 170  
 – secondary structure 172  
 – predictions 173  
 – structure predictions 170  
 – computer predictions 170, 174, 176  
 – tertiary interactions 170, 172, 177, 178  
 – structure-function relationships 187  
 – transcription 231  
 RNA-RNA hybridization assays 162  
 RP- $\alpha$  213  
 RT-PCR 116

**S**

Sabin vaccine 246, 247  
 $\beta$ -sandwich 192  
 SCID mice 295  
 SECIS element 91  
 selenium 85–87, 237  
 – dietary deficiency 89  
 – glutathione peroxidase 85  
 – immune response 85

– phenotype change 86  
 – supplementation 86  
 – virus titers 85  
 selenoprotein genes 91  
 serologic testing 72  
 serology 15  
 serotypes 37–39, 43  
 short consensus repeat (SCR) domains 218, 219  
 skeletal muscle diseases 67, 68  
 slot blot 34, 35, 43  
 – in dilated cardiomyopathy 43  
 – in myocarditis 40  
 spontaneous abortion 20  
 stillbirths 20  
 Structurelab 177  
 $\beta$ -structures 128  
 subclinical infections 23  
 super-computer 176, 178  
 superoxide dismutase 89  
 supportive care 74  
 SVDV (see swine vesicular disease virus)  
 swine vesicular disease virus (SVDV) 153  
 – antigenically related to CVB5 155  
 – capsid structures 160  
 – human infections 154  
 – single common ancestor 163  
 – site 1 160  
 – site 2 160  
 – site 3 160

**T**

T cell epitopes of CVB 290f.  
 T cells 283–300  
 Th1 236  
 Th2 236  
 Theiler's murine encephalomyelitis virus 248  
 – capsid proteins 248  
 thermodynamic parameters 173

transfer experiments 295  
treatment 25, 74  
tumor necrosis factor- $\alpha$  271

## U

upper respiratory infections 66

## V

vaccines 73, 228, 251  
variable region 102  
vesicular diseases of pigs 154  
viral persistence 24  
virus  
– chimeric 229  
– entry 222  
– isolation 21, 33, 37–39, 43  
– – in dilated cardiomyopathy 43  
– – in myocarditis 37–39  
virus-receptor interactions 219–221  
vitamin E 87, 237  
– dietary deficiency 89  
VP1, Thr-129 242  
VP4, Arg-16 242

## W

Watson-Crick base-pairs 172