

Index

A

Adaptation 94, 96, 97, 172, 176
Aging 150–155, 161–166

B

Bacteria 1, 2, 37, 45–50, 74, 93, 95, 145, 150, 154

C

Cancer 20, 143–146, 163
Cell communication 46, 50, 57
Chapman–Kolmogorov equation 103–104
Cooperation 13, 23–30, 33–36, 38–39, 94, 145, 154

D

DNA 1–7, 24, 47, 48, 50, 51, 55, 57, 62, 65, 69, 71, 73, 91–93, 144, 151, 161, 164, 177

E

Econophysics 108, 120, 122, 125
Evolution 3, 12–16, 25, 26, 28, 29, 33, 35–40, 68, 79, 84, 88, 93–98, 102, 109, 145, 146, 151, 156, 165, 170, 175, 177, 178

F

Fitness 12–16, 19–23, 25–26, 28–29, 31, 33, 34, 36–40, 94–95
Fractional Brownian motion 103, 123

G

Game 23, 24, 26–29, 33, 35–40, 114, 124, 139
Gene 2, 23, 46, 48–54, 56, 61, 62, 75, 78, 79, 96, 145, 155, 161, 165, 166, 178, 179
Genetic regulation 61–79
Genome 1–3, 48, 53, 91–96, 145, 150, 166, 172, 183

H

Hierarchical organization 20, 21

M

Market 107, 112–125, 128, 131, 136, 137–140
Microorganism 24, 36, 48
Mutant 13–23, 28, 32, 37–40, 49, 74–75, 94, 145, 161, 164, 165

O

Origin of life 103

P

Pathway 2, 6, 7, 40, 51–53, 55, 56, 83–89, 152, 172
Population 12–23, 25–30, 33–35, 37–40, 46, 54, 55, 94–97, 151, 176–177

Q

Quorum sensing 46, 47, 49–57

R

Recombination 2–4, 6–7, 12, 93, 95, 97
Replication 3, 37, 92, 93, 144–145

RNA 37, 48, 51–57, 61, 62, 64, 66, 68, 69, 72,
73, 75–76, 83–84, 87, 88, 91–96, 177

S

Selection 12–15, 19–23, 25–26, 28, 31, 33,
38–39, 94, 96, 145, 146, 151, 161, 166,
170, 178

T

Transcription 51, 53, 64–67, 69, 72–73, 75,
76, 83, 84, 92–93

Translation 52–53, 56, 64, 66, 67, 69, 72,
83–86, 88, 92

V

Virus 37, 74, 91–97, 154

Vision 162, 170, 174, 175, 178, 179, 181, 183