Index

Aβ see amyloid beta
abstract concepts 349–50
abstraction 375, 390, 397
abuse 61
ACE see angiotensin converting enzyme
acquired dyslexia 337
acquired persistent intellectual impairments
acquisition of memory 486
ACS see acute confusional state
actigraphy 491–2
activities of daily living (ADL) 
Alzheimer’s disease 14, 20–1, 25, 40, 43, 58
dementia syndrome 5, 8, 10, 13
mild cognitive impairment 31
vascular dementia 100–1
visuospatial dysfunction 462
acute confusional state (ACS) 34
acute dementias 180
acute demyelinating encephalomyelitis
(ADEM) 186
AD see Alzheimer’s disease
AD8 test 11
ADAS-Cog see Alzheimer’s Disease Assessment Scale
ADCS see Alzheimer Disease Cooperative Studies
Addenbrooke’s Cognitive Examination 390–1
ADDTC see Alzheimer’s Disease Diagnostic and Treatment Centers
ADEM see acute demyelinating encephalomyelitis
ADGC see Alzheimer’s Disease Genetic Consortium
ADHD see attention deficit hyperactivity disorder
adjunctive therapies see disease-modifying therapies
ADL see activities of daily living
affected sibling pairs (ASP) 204
AGD see argyrophilic grain disease
aggressive behavior
Alzheimer’s disease 26–7, 423–4
executive functioning 394
frontotemporal dementia 151, 435
agitation 26–7, 423–4, 430
agnosia–aphasia double dissociation 348–9
agrammatism 338, 344–5, 351, 356–7
alertness 136
alpha desynchronization 590
alpha-synuclein
dementia with Lewy bodies 132, 134, 242
dementia syndrome 183
neuronal cell death pathways 287
ALS see amyotrophic lateral sclerosis
alternative medicines 307
AlzGene study 206–10
Alzheimer, Alois 3–4, 262, 423–5, 457
Alzheimer Disease Cooperative Studies (ADCS) 307
Alzheimer’s Disease Genetic Consortium (ADGC) 209, 210, 211
Alzheimer filters 462–3
Alzheimer’s disease (AD) 3–91
  age at onset 4, 5, 15, 197–210, 235, 561
  alternative hypotheses to amyloid cascade 270–1
  alternative medicines 307
  amyloid cascade hypothesis 17–18, 50, 262–4, 265–72, 277
  apolipoprotein E 15–16, 201–4, 210, 214–15, 235, 237
  apoptosis 278–80, 284–8
  approved treatments 302–3
  apraxia 23, 24
  association studies 206–10
  at-risk subjects 544–5, 549
  attention disturbances 24–5, 34
  autosomal dominant transmission 16, 17, 30
  behavioral disturbances 25–7, 29, 52–5
  cardiovascular disease 109–10
  cholinergic hypothesis 39–43
  clinical features 18–20
  clinical heterogeneity 29–31
  clinical, promodal and presymptomatic phases 558–9
  communication with patient/family/carers 56–8
  computed tomography 507, 508–12, 513
  definitions 5–6
  dementia syndrome 4–13
  diagnosis 14–15, 34–6
  diagnostic criteria 34, 239–40
  disease-modifying therapies 37–8, 44–55
  drug targets 304–7
  dysexecutive syndrome 25
  electroencephalography 576–7, 578–88
  emerging developments in diagnosis 34–6
  emotional and behavioral disturbances 416, 421–33
  epidemiology 4–5, 200–3, 423–4, 429–30
  excitotoxicity 282–4, 290–1
  executive functioning 387–9, 395–7, 400
  functional MRI 535–41, 544–9
  future directions 271–2, 307–8
  genetic epidemiology 200–1
  genetic factors 197–210
  historical development 3–4
  language disturbances 23–4, 336, 338–46, 358–9
  Lewy bodies 241
  linkage studies 204–6
  macroscopic appearance of brain 236–7
  magnetic resonance imaging 507, 511, 512–24
  magnetoencephalography 577, 589–92
  memory dysfunction 20–2, 25, 317, 322–6, 329
  microscopic features of brain 237–9
  mild cognitive impairment 31–4, 36
  molecular neuroimaging 557, 558–68
  necrosis 280–2, 288–9
  neurodegenerative mechanisms 277–300
  neuronal cell death pathways 277–92
  neuropathology 17–18, 134
  pharmacological treatments 36–55, 301–3
  postmortem diagnosis 14–15
  presentation 13–14
  risk and protective factors 15–17
  secondary manifestations 28–9
  sleep disturbances 483, 490–3
  stage progression 19–20
  symptomatic therapies 37–8, 39–43
  treatment 36–61
  visuospatial and perceptual deficits 22–3, 457–75
see also amyloid beta; dementia of the Alzheimer type; plaque and tangle pathology
Alzheimer’s Disease Assessment Scale (ADAS-Cog) 548, 567
Alzheimer’s Disease Diagnostic and Treatment Centers (ADDTC) 94–5
aMCI see amnestic single domain MCI
aMCI-MD see amnestic multiple domain MCI
amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptors 282, 284, 290–1
amnestic aphasia 146
amnestic multiple domain MCI (aMCI-MD) 32, 33
amnestic single domain MCI (aMCI) 31, 40
amodal deficits 348–9
AMPA see amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid
amygdala
emotional and behavioral disturbances 419–20, 421, 425–8
neurodegeneration mechanisms 239
neuroimaging 516–17
amyloid angiopathy 240
amyloid beta (Aβ) 262–76
alternative hypotheses to amyloid cascade 270–1
Alzheimer’s disease 17–18, 29, 35–6, 44–51
amyloid precursor protein 262, 264–8
drug targets 301, 304–5
future treatments for AD 271–2
genetic factors 198–200
mechanism of amyloid cascade 268–70
neuroimaging 537
neuronal cell death pathways 282–3, 287
neuropathology 235, 237–8, 240
presenilin genes 263, 267–8, 271
tau protein 270–1
amyloid cascade hypothesis 17–18, 50, 262–76, 277
amyloid imaging 165
amyloid precursor protein (APP)
Alzheimer’s disease 17, 36, 47–9
amyloid cascade hypothesis 262, 264–8
genetic factors 198–200, 212
neuronal cell death pathways 292
neuropathology 235, 238
amyloidopathies 132
amyotrophic lateral sclerosis (ALS) 146
clinical features 148–9
executive functioning 393–4
genetic factors 218
molecular neuroimaging 562
neuropathology 161, 163
ancillary testing for dementia 12–13
aneurysmal subarachnoid hemorrhage (SAH) 214
angiotensin converting enzyme (ACE) inhibitors 111
anisotropic diffusion 523
anomia 338, 342–3, 355–6
anosognosia 21
anterior cingulate cortex (ACC) 419–20, 433, 517
anterolateral temporal cortex 337, 348–9
anti-Aβ aggregation agents 50–1
anti-Aβ vaccines 272
antidepressants
Alzheimer’s disease 28
dementia with Lewy bodies 140
emotional and behavioral disturbances 431–2, 435
frontotemporal dementia 165
anti-epilepsy drugs 290
anti-inflammatory drugs 44–5
antioxidants 45–6, 286, 306–7
antipsychotics
emotional and behavioral disturbances 431–2, 435, 437–8
frontotemporal dementia 166
anti-tau immunohistochemistry 280
anxiety disorders
dementia syndrome 189–90
memory dysfunction 317
anxiolytics 431, 435
AOS see apraxia of speech
Apaf see apoptosis protease activating factor-1
apathy
Alzheimer’s disease 25, 26–7, 423–4
frontotemporal dementia 151
aphasia 23
ApoE see apolipoprotein E
apoprotein E (ApoE)
amyloid cascade hypothesis 263, 266, 268
dementia with Lewy bodies 135
neuroimaging 536, 544, 559, 563–4
vascular dementia 103, 214–15
visuospatial dysfunction 469
apoptosis 278–80, 284–8
apoptosis protease activating factor-1 (Apaf) 278, 284–5
APP see amyloid precursor protein
apraxia 23, 24
apraxia of speech (AOS) 353–4
argyrophilic grain disease (AGD) 160, 244, 246
arterial spin labeling (ASL) 98–9, 520–1
arteriosclerosis 103, 106–7
aryl-sulfatase 188
ASL see arterial spin labeling
ASP see affected sibling pairs
association studies 206–10
associative recognition memory 539–41
associative semantic memory 542
ataxia 184
atherosclerosis 92
atrial fibrillation 109
attention deficit hyperactivity disorder (ADHD) 317, 329
attention testing
Alzheimer’s disease 24–5, 34
dementia syndrome 11
electroencephalography 587–8
neuroimaging 543, 545
attentional focus 467–8, 469
attentional salience 463–4
auditory comprehension 23–4, 97
auditory feature knowledge 348–9
autobiographical memory 22
autoimmune diseases 9
autoimmune thyroiditis 190–1
autosomal dominant early-onset AD 197–200
autosomal dominant transmission of AD 16, 17, 30
autosomal dominant VaD 211–12
β-secretase converting enzyme (BACE1) 48–9
β-site APP-cleaving enzyme (BACE) 265–6, 272, 304
B12 deficiency 190
BACE see β-site APP-cleaving enzyme
BACE1 see β-secretase converting enzyme
BADL see basic activities of daily living
BADS see Behavioral Assessment of the Dysexecutive System
Balint’s syndrome 192
basal ganglia 327–8
basic activities of daily living (BADL) 100–1
basophilic inclusion body disease (BIBD) 160
Bcl-2 protein family 278–80, 282, 285
BDRS see Blessed Dementia Rating Scale
Behavioral Assessment of the Dysexecutive System (BADS) 384, 386–7
behavioral disturbances 416–56
Alzheimer’s disease 25–8, 29, 52–5, 56, 416, 421–33
amygdala 419–20, 421, 425–8
consequences 424
dementia with Lewy bodies 137–8, 141–2, 416, 421, 435–8
dementia syndrome 183
environmental interventions 430
epidemiology 423–4
executive functioning 369–70, 397–8, 400
frontotemporal dementia 145–6, 148–52, 165–6, 416, 421, 433–5
functional neuroanatomy 417–20, 421
genetic factors 428–9
pathophysiology 424–9, 434–5, 436–7
treatment 429–33, 435, 437–8
Behavioral Rating Inventory of Executive Function for Adults (BRIEF-A) 381, 386
behavioral studies 379–88, 391–5, 398–401
behavioral/dysexecutive FTD 145–6, 148–52
benzodiazepines 431, 435
beta amyloid see amyloid beta
beta-blockers 111
BIBD see basophilic inclusion body disease
Binswanger’s disease 249, 250
biomarkers
  Alzheimer’s disease 33, 34–6
dementia syndrome 183
molecular neuroimaging 563, 567–8
vascular dementia 102–3
bipolar disorder 206
Blessed Dementia Rating Scale (BDRS)
  322–3, 422–3, 434, 436
Block Design test 381, 385
blood flow measures 520–1, 559–60
blood-oxygen-level-dependent (BOLD) contrast
  536–7, 539–40, 548–9
borderzone infarction 253
Boston Diagnostic Examination of Aphasia
  357, 463
Boston Qualitative Scoring System (BQSS)
  382
boundary shift integrals 518
bovine spongiform encephalopathy (BSE)
  184
BQSS see Boston Qualitative Scoring System
brain activity 427–8
brainstem Lewy bodies 242
brief cognitive tests 10–12
BRIEF-A see Behavioral Rating Inventory of Executive Function for Adults
Broca’s aphasia 354
BSE see bovine spongiform encephalopathy
c-Jun N-terminal kinase (JNK) 279, 287–8
C-reactive protein (CRP) 102
CA3/CA1 regions 318–20
CAA see cerebral amyloid angiopathy
CADASIL see cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy
calcarine cortex 427–8
calcineurin inhibitors 285
calcium channel blockers 288–9
calpain inhibitor calpastatin (CAST)
  280
calpains 280–2, 289
cAMP see cyclic AMP
carbamazepine (CBZ) 29
cardiomyopathy 199–200
cardiomyopathy disease 200–1
carotid stenosis 199
carotid ultrasonography 198–9
carcinogenesis 296–7
carcinoma 296
carcinoma of the esophagus 10
CASS trial 432
CSD see central nervous system dysfunction
cysteine cathepsins 280–2, 289
cytoplasmic calcium 292
cytoskeletal filamentous proteins 285
cytoskeletal organization 290–1
cytoskeletal proteins 290
C-shaped anomia 357
C的认知症研究 13
Cognitive Test 427
Cognitive Test 427
communicating 187
communication
  13, 56–8
dementia syndrome 13
emotional and behavioral disturbances
  424, 430, 434
frontotemporal dementia 167
memory dysfunction 322
caspase inhibitory factor (CIF) 286
caspases 278–80, 285–7
CAST see calpain inhibitor calpastatin
CAT see computed tomography
category specificity 343
cathepsins 280–2, 289
CATIE study 432
CBD see corticobasal degeneration
CBS see corticobasal syndrome
CBZ see carbamazepine
CC see cingulate cortex
CD95 see Fas
Cdk see cyclin-dependent kinases
CDR-SB see Clinical Dementia Rating Scale
  Sum of Box
CDT see clock drawing test
ceftriaxone 290
celling effects 8, 10
 cell energy homeostasis 291
central nervous system (CNS) 282
CERAD see Consortium to Establish a Registry for Alzheimer’s Disease
cerebellum 327–8, 516–17
cerebral amyloid angiopathy (CAA)
  106–7, 240, 249, 252
cerebral arteries 253
cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy
cerebral blood flow 520–1
cerebral cortex 244
cerebral dysfunction 179, 189
cerebral hemorrhages 250
cerebral hypoperfusion 250, 253
cerebrospinal fluid (CSF)
  analysis 13, 35–6, 47–8
  dementia syndrome 184–7, 193
neuroimaging 510, 513, 516, 518–19
vascular dementia 102
cerebrovascular atherosclerosis 103, 106–7
cerebrovascular disease (CVD)
genetic factors 212–14
vascular dementia 99–100, 102–4, 105, 108–9
change-detection accuracy 468
charged multivesicular body protein 2b (CHMP2B) 155–6, 158
CHARGE see Cohorts for Heart and Aging Research in Genomic Epidemiology
ChAT see choline acetyltransferase
ChEI see cholinesterase inhibitors
Chinese herbs 307
CHMP2B see charged multivesicular body protein 2b
choline acetyltransferase (ChAT) 135, 470–1
cholinergic dysfunction
dementia with Lewy bodies 135, 138
electroencephalography 584–5
magnetoencephalography 590
vascular dementia 113
cholinergic hypothesis 39–43
cholinesterase inhibitors (ChEI)
Alzheimer’s disease 26, 37–9, 40–3, 301–2
dementia with Lewy bodies 135, 139–42
electroencephalography 584–5, 592–3
emotional and behavioral disturbances 431, 435, 437
frontotemporal dementia 166
memory dysfunction 323, 324
neuroimaging 547, 565
neuronal cell death pathways 291–2
vascular dementia 113
chromosome 17 (FTDP-17) 216–17, 247
chronic degenerative dementias 180
chronic traumatic encephalopathy (CTE) 248
CIF see caspase inhibitory factor
cingulate cortex (CC) 417, 419–20
circadian rhythm 483, 484, 491–5
CJD see Creutzfeldt–Jakob disease
Clinical Dementia Rating Scale 513
Clinical Dementia Rating Scale Sum of Box (CDR-SB) 542, 544
clioquinol 51
clock drawing test (CDT)
dementia syndrome 11, 22
visuospatial dysfunction 461–2, 472, 474
clonazepam 142–3
closed-class words 351–2
clozapine 140, 142
CMAI see Cohen-Mansfield Agitation Inventory
cognitive ERPs 585–8
cognitive flexibility 375
cognitive function
dementia with Lewy bodies 131, 133, 135–6, 139–41
dementia syndrome 10, 183–4, 187–8, 192–3
electro/magnetoencephalography 590–3
executive functioning 369–71, 397–8
vascular dementia 95
cognitive motor disorders 24
cognitive neuroscience 319–20, 469
Cognitive Reserve 10
cognitive response set 374–5, 389–90, 392, 396–7
cognitive training 308
Cohen-Mansfield Agitation Inventory (CMAI) 423
coherence 578–9, 589
Cohorts for Heart and Aging Research in Genomic Epidemiology (CHARGE) 208, 209, 211
Collaborative Alzheimer Project 207–8
colostrinin 50–1
communication with patient/family/carers 13, 56–8
complement receptor 1 (CR1) 206, 208, 209, 210
computed tomography (CT)
Alzheimer’s disease 507, 508–12, 513, 535
dementia with Lewy bodies 139
development of technique 508
vascular dementia 95, 98–100
CONCERT study 50
concrete concepts 340, 349–50
confrontation 430
consolidation of memory 319, 486–8
Consortium to Establish a Registry for Alzheimer’s Disease (CERAD) 238, 240, 322

construction disturbances 23

contrast sensitivity 462–3, 468–71
copper metabolism 188–9
core body temperature 494

Cornell Scale for Depression in Dementia (CSDD) 423
cortical dementia syndromes 18–19, 30
cortical Lewy bodies 134, 138, 242
cortical neuronal loss 18
corticobasal degeneration (CBD) dementia syndrome 181–2
corticobasal syndrome (CBS) 146
corticosteroids 185, 186–7, 304

COX see cyclooxygenase
CR1 see complement receptor 1
Creutzfeldt–Jakob disease (CJD) 13, 29, 183–4
Crichton-Browne, James 3
cross-cortical integration 466

CRP see C-reactive protein

CSF see cerebrospinal fluid

CST3 gene 213
CT see computed tomography
curcumin 46, 306–7
CVD see cardiovascular disease;
cerebrovascular disease
cyanocobalamin deficiency 190
cyclic AMP (cAMP) 213
cyclin-dependent kinases (Cdk) 281, 285, 288, 307
cyclooxygenase (COX) inhibitors 45, 49
cystatin C gene (CST3) 213
cysteine calcium-dependent proteases 280–2
cytochrome c 284–5
cytokines 265–6
cytoplasmic calcium concentrations 280–2

D-KEFS see Delis–Kaplan Executive Function System
DAD see Disability Assessment for Dementia

DAT see dementia of the Alzheimer type
daytime napping 492
decision-making 375–6
declarative memory 315–17, 485–8, 585–7, 588
delirium 34
Delis–Kaplan Executive Function System (D-KEFS) 381, 384
delusions
Alzheimer’s disease 27, 423–4
dementia with Lewy bodies 437
dementia with Lewy bodies (DLB) 131–44
dementia lacking distinctive histopathology (DLDH) 159–60, 163
dementia with Lewy bodies (DLB) 131–44
age at onset 131, 398
clinical features 131, 133, 138
diagnosis 133, 135–9
diagnostic criteria 131, 133
differential diagnosis 131–4, 580, 591
electroencephalography 580, 584
emotional and behavioral disturbances 416, 421, 435–8
epidemiology 131–2
executive functioning 397–9
macroscopic appearance of brain 242
magnetoencephalography 591
memory dysfunction 317, 325, 328–9
microscopic features of brain 242
molecular neuroimaging 561
neuroimaging 138, 546–7
neuropathology 240–3
pathophysiology 132–5
prognosis 143
sleep disturbances 493–4
staging of brain pathology 243
treatment 139–43
visuospatial dysfunction 458, 472–3
Dementia Rating Scale (DRS) 381, 384, 390–1
dementia syndrome 4–13, 179–93
acute dementias 180
age at onset 188–9
chronic degenerative dementias 180
classification 180–1
communication with patient/family/carers 13
definitions 5–6
diagnostic criteria 179
differential diagnosis 7–13
epidemiology 4–5
evaluation 8–13
executive functioning 369–70
genetic factors 187–9
irreversible encephalopathies 181–9
mitochondrial disorders 189
neuroimaging 190–2
recognition 6–7
reversible encephalopathies 180–1, 189–93
see also individual disorders
dementia syndrome of depression (DSD) 8
demyelination 102, 188
densitometry 510–11, 513
depression
Alzheimer’s disease 27–8, 423–4, 429
dementia with Lewy bodies 140
dementia syndrome 7–8
epidemiology 4
executive functioning 394
frontotemporal dementia 151
memory dysfunction 317, 328–9
depression disorders 9, 12
design fluency tests 383
deterministic autosomal dominant transmission 16, 17, 30
DEX see Dysexecutive Questionnaire
DHA see docosahexanoic acid
diabetes 108, 111–12
diagnostic markers 34
Diagnostic and Statistical Manual of Mental Disorders (DSM IV/V)
Alzheimer’s disease 14, 28, 33
dementia syndrome 179
vascular dementia 94–5
dietary factors
Alzheimer’s disease 17, 47
dementia syndrome 189
frontotemporal dementia 151–2
see also nutritional disorders
diffusion tensor imaging (DTI) 98–9, 521, 523–4
diffusion tensor spectroscopy (DTS) 523–4
diffusion-weighted imaging (DWI) 98–9
dimebolin hydrochloride 50
Disability Assessment for Dementia (DAD) 150
discourse disturbances 338, 345–6, 351–2, 357–8
disease-modifying therapies (DMT)
Alzheimer’s disease 37–8, 44–55
dementia with Lewy bodies 139
dementia syndrome 186
frontotemporal dementia 167
molecular neuroimaging 557, 566–8
disinhibition
executive functioning 373, 388, 395–6
frontotemporal dementia 151, 152, 166, 434
disorientation 22, 459–60
DLB see dementia with Lewy bodies
DLDH see dementia lacking distinctive histopathology
DLPFC see dorsolateral prefrontal cortex
DMT see disease-modifying therapies
docosahexanoic acid (DHA) 49–50, 290, 306–7
Index

donepezil
  Alzheimer’s disease 40–3, 302
dementia with Lewy bodies 140–1
  emotional and behavioral disturbances 437
  frontotemporal dementia 166
  neuroimaging 565
  neuroprotective strategies 291–2
  vascular dementia 113
dopamine agonists 140
dopaminergic agents 437–8, 489, 565
dopaminergic neurotransmission 135, 138
dorsolateral prefrontal cortex (DLPFC)
  emotional and behavioral disturbances 419–20, 433
  executive functioning 376, 379
Down syndrome 263, 268
Drilled Word Span Test 322
driving
  Alzheimer’s disease 10, 22, 58, 60–1
  visuospatial dysfunction 459–60, 466, 468
DRS see Dementia Rating Scale
drug-related conditions 8
DSD see dementia syndrome of depression
DSM IV see Diagnostic and Statistical Manual of Mental Disorders
DTI see diffusion tensor imaging
DTS see diffusion tensor spectroscopy
DWI see diffusion-weighted imaging
dysarthria 353
Dysexecutive Questionnaire (DEX) 381, 386–7, 388
dysexecutive syndrome 25
EAAT-2 see excitatory amino acid transporter
EADI see European Alzheimer’s Disease Initiative
early diagnosis 7
early sensory ERPs 582–5
early-onset AD
  amyloid cascade hypothesis 265–6
  genetic factors 197–200
  neuroimaging 561
echolalia 24
EDF see epidermal growth factor
EEG see electroencephalography
elder abuse 61
electroencephalography (EEG) 575–88, 592–3
  cognitive ERPs 585–8
  dementia syndrome 13, 183–4
  event-related potentials 581–8, 590, 592–3
  functional neuroimaging 579, 581, 587
  future directions 592–3
  quantitative 577–81, 589, 591
  sleep disturbances 484–5
electromyography (EMG) 484–5
electrophysiological processes 484–5
ELND005 305
EMG see electromyography
emotional disturbances 416–56
  Alzheimer’s disease 416, 421
  amygdala 419–20, 421, 425–8
  connectivity 420
  definitions 418–19
  dementia with Lewy bodies 416, 421, 435–8
  frontotemporal dementia 151, 152–3, 416, 421, 433–5
  functional neuroanatomy 417–20, 421
  genetic factors 428–9
  pathophysiology 424–9, 434–5, 436–7
  treatment 429–33, 435, 437–8
encephalitis 328
encephalopathies 179–81
endoplasmic reticulum (ER) 279–81
entorhinal cortex
  emotional and behavioral disturbances 426
  executive functioning 379
  neuroimaging 514, 516–17
  neuropathology 239
environmental interventions
  emotional and behavioral disturbances 430, 435
  visuospatial dysfunction 470
epidermal growth factor (EDF) 212
epigenetic modifications of DNA 302
epilepsy 28–9
episodic memory 316–26
  Alzheimer’s disease 21
  electroencephalography 587
  executive functioning 387
  neuroimaging 538–40, 543
<table>
<thead>
<tr>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>ER see endoplasmic reticulum</td>
</tr>
<tr>
<td>ERP see event-related potentials</td>
</tr>
<tr>
<td>error analysis 350, 356</td>
</tr>
<tr>
<td>establishing set 374–5, 389–90, 392, 396–7</td>
</tr>
<tr>
<td>estrogens 46, 285, 288, 291</td>
</tr>
<tr>
<td>European Alzheimer’s Disease Initiative (EADI) 206</td>
</tr>
<tr>
<td>event-related potentials (ERP) 581–8, 590, 592–3</td>
</tr>
<tr>
<td>excitatory amino acid transporter (EAAT-2) 290</td>
</tr>
<tr>
<td>excitotoxicity 282–4, 290–1</td>
</tr>
<tr>
<td>executive functioning 369–415</td>
</tr>
<tr>
<td>abstraction 375, 390, 397</td>
</tr>
<tr>
<td>Alzheimer’s disease 387–9, 395–7, 400</td>
</tr>
<tr>
<td>cognitive response set 374–5, 389–90, 392, 396–7</td>
</tr>
<tr>
<td>definitions and characteristics 369, 370</td>
</tr>
<tr>
<td>dementia with Lewy bodies 135, 138, 397–9</td>
</tr>
<tr>
<td>dementia syndrome 188, 191</td>
</tr>
<tr>
<td>development 370–1</td>
</tr>
<tr>
<td>frontotemporal dementia 152, 387, 392–7, 400</td>
</tr>
<tr>
<td>generativity 374, 389, 392, 396</td>
</tr>
<tr>
<td>hierarchical model of neuropsychological functions 379–80</td>
</tr>
<tr>
<td>inhibition and impulse control 373, 388, 395–6</td>
</tr>
<tr>
<td>initiation 373</td>
</tr>
<tr>
<td>judgment and decision-making 375–6</td>
</tr>
<tr>
<td>language disturbances 336, 356–7</td>
</tr>
<tr>
<td>memory dysfunction 328</td>
</tr>
<tr>
<td>motivation 372</td>
</tr>
<tr>
<td>neuroanatomy 376–9</td>
</tr>
<tr>
<td>neuropsychological and neuropsychiatric assessments 371, 379–88, 391–5, 398–401</td>
</tr>
<tr>
<td>perseverance 374, 388</td>
</tr>
<tr>
<td>planning and organizing 375, 390, 397</td>
</tr>
<tr>
<td>self- and social-awareness 372–3, 388, 394–6</td>
</tr>
<tr>
<td>self-monitoring 376</td>
</tr>
<tr>
<td>specific executive functions 371–6</td>
</tr>
<tr>
<td>vascular dementia 96–7, 101, 390–2, 395</td>
</tr>
<tr>
<td>volition 372</td>
</tr>
<tr>
<td>working memory 374, 388–9, 392, 396, 398</td>
</tr>
<tr>
<td>Executive Interview (EXIT25) 381, 386</td>
</tr>
<tr>
<td>executive testing 11, 25</td>
</tr>
<tr>
<td>EXIT25 see Executive Interview</td>
</tr>
<tr>
<td>explicit memory 315–17, 485–8, 585–7, 588</td>
</tr>
<tr>
<td>extrapyramidal features</td>
</tr>
<tr>
<td>dementia with Lewy bodies 131, 135, 136–8, 140–1</td>
</tr>
<tr>
<td>dementia syndrome 183, 188</td>
</tr>
<tr>
<td>emotional and behavioral disturbances 432</td>
</tr>
<tr>
<td>frontotemporal dementia 166</td>
</tr>
<tr>
<td>see also parkinsonism</td>
</tr>
<tr>
<td>F-DOPA see 18F-fluorodopa</td>
</tr>
<tr>
<td>F2-isoprostanes 36</td>
</tr>
<tr>
<td>FA see fractional anisotropy</td>
</tr>
<tr>
<td>facial emotion recognition 464–5</td>
</tr>
<tr>
<td>failed therapies 303–4</td>
</tr>
<tr>
<td>false memories 324</td>
</tr>
<tr>
<td>familiarity 586</td>
</tr>
<tr>
<td>family education 57–8</td>
</tr>
<tr>
<td>family histories</td>
</tr>
<tr>
<td>Alzheimer’s disease 15, 201</td>
</tr>
<tr>
<td>dementia syndrome 10, 13, 187</td>
</tr>
<tr>
<td>vascular dementia 213</td>
</tr>
<tr>
<td>Fas and Fas/L 278, 280</td>
</tr>
<tr>
<td>fast-wave activity 578, 589</td>
</tr>
<tr>
<td>FDG-PET see [18F]fluorodeoxyglucose positron emission tomography</td>
</tr>
<tr>
<td>FHS see Framingham Heart Study</td>
</tr>
<tr>
<td>figure-ground discrimination 23</td>
</tr>
<tr>
<td>flavopiridol 285</td>
</tr>
<tr>
<td>FLF see frontal lobe dementias</td>
</tr>
<tr>
<td>floor effects 10</td>
</tr>
<tr>
<td>fluctuations in cognition 133, 136, 138</td>
</tr>
<tr>
<td>fluent aphasias 183</td>
</tr>
<tr>
<td>[18F]fluorodeoxyglucose positron emission tomography (FDG-PET)</td>
</tr>
<tr>
<td>Alzheimer’s disease 36, 535–8, 544–5, 560, 562–4</td>
</tr>
<tr>
<td>frontotemporal dementia 163, 165</td>
</tr>
<tr>
<td>language processing 341, 353</td>
</tr>
<tr>
<td>18F-fluorodopa (F-DOPA) 565</td>
</tr>
<tr>
<td>fMRI see functional MRI</td>
</tr>
<tr>
<td>FN400 abnormalities 586–7</td>
</tr>
<tr>
<td>folate disorders 9, 12</td>
</tr>
<tr>
<td>fractional anisotropy (FA) 523</td>
</tr>
<tr>
<td>fragmentation of activity rhythms 492</td>
</tr>
</tbody>
</table>
Framingham Heart Study (FHS) 214, 237
frontal lobe dementias (FLD) 4
frontal lobes
Alzheimer’s disease 236
dementia with Lewy bodies 135
executive functioning 370–1, 376–7
language disturbances 350–1
memory dysfunction 321, 325
neuroimaging 560–1
visuospatial dysfunction 472
frontal N400 (FN400) 586–7, 588
frontal-subcortical circuits 379
Frontal Systems Behavior Scale (FrSBe) 381, 386
frontal systems damage see dysexecutive syndrome
frontal variant FTD (fvFTD) 145–6
clinical features 148–52
executive functioning 392–5
neuroimaging 163–5
neuropathology 159, 161
treatment 165–6
frontotemporal dementia (FTD) 145–78
age at onset 149, 244
clinical features 148–50
clinical subtypes 145, 146, 148, 150–4
differential diagnosis 149–50, 165, 358, 562, 580
electroencephalography 580
emotional and behavioral disturbances 416, 421, 433–5
epidemiology 149
executive functioning 387, 392–7, 400
functional connectivity 589, 591–2
functional impairments
dementia syndrome 5, 8
vascular dementia 95, 100–2
functional MRI (fMRI) 535–56
activation studies 537–45, 544–9
Alzheimer’s disease 535–41, 544–9
at-risk subjects 544–5, 549
dementia with Lewy bodies 546–7
development of technique 535–6
electroencephalography 579, 581, 587
emotional and behavioral disturbances 427–8
frontotemporal dementia 546–7
future directions and limitations 548–9
language disturbances 347–8
magnetoencephalography 590–1
memory dysfunction 315
mild cognitive impairment 536, 541–3, 544–7, 549
Parkinson’s disease 546–7
pharmacological treatments 547–8
physiological basis 536–7
resting state studies 545–6, 548
visuospatial dysfunction 460, 466–7
fvFTD see frontal variant FTD
GABA receptors 291
GAG see glycosaminoglycan
galantamine
Alzheimer’s disease 40–1, 43–4, 301
dementia with Lewy bodies 140–1
neuroprotective strategies 291–2
vascular dementia 113
GDS see Geriatric Depression Scale
gender differences 458, 466
generativity 374, 389, 392, 396
Genetic and Environmental Risk in AD
  Consortium (GERAD) 206, 208, 209,
  210, 211
genetic factors 197–234
  Alzheimer’s disease 15–16, 197–210
  amyloid precursor gene 198–9
  apolipoprotein E and LOAD 201–4
  association studies 206–10
  dementia syndrome 187–9
  early-onset AD 197–200
electroencephalography 583–5
  emotional and behavioral disturbances 428–9
  frontotemporal dementia 155–8,
  215–18
  future directions 219
genetic epidemiology 200–1
  late-onset AD 197–8, 199, 200–10
  linkage studies 204–6, 211–12
  neuroimaging 559, 563–4
  vascular dementia 107–8, 115, 211–15
  genetic markers 35
genome-wide association studies (GWAS)
  206–10, 308
  genome-wide linkage studies 213
GERAD see Genetic and Environmental
  Risk in AD Consortium
Geriatric Depression Scale (GDS) 423
Gerstmann–Straussler–Scheinker disease
  (GSS) 184
ginkgo biloba 45–6, 304, 307
ginseng 307
GLAST see glutamate-aspartate transporter
GLT-1 see glutamate transporter-1
glutamate excitotoxicity 282–4, 290–1
glycogen synthase kinase-3 (GSK-3) 51,
  288
glycosaminoglycan (GAG) 50
Gothenburg longitudinal study 215
grammatical disturbances 338, 344–5, 351,
  356–7
grand lobe libique 417–18
gray matter
executive functioning 370
neurodegeneration 236
neuroimaging 511, 513, 518
  gray-scale contrast 468–9
growth factors 301, 306–7
GSK-3 see glycogen synthase kinase-3
GSS see Gerstmann–Straussler–Scheinker
disease
GWAS see genome-wide association
  studies
H&E see hematoxylin and eosin
hallucinations
  Alzheimer’s disease 27, 423–4
  dementia with Lewy bodies 131, 133–4,
  138, 140–2, 436–7
  dementia syndrome 184, 190
  memory dysfunction 324
  sleep disturbances 493–4
haloperidol 432
Halstead Category Test 381, 382
HARMONY study 200
Hashimoto’s encephalopathy 191
HCHWA see hereditary cerebral
  hemorrhage with amyloidosis
HD see Huntington’s disease
head trauma 317
heart failure 110
Heidenhain variant CJD 184
hematoxylin and eosin (H&E) staining
  242
hemorrhages 328
hemorrhagic stroke 213
herbal remedies 307
hereditary cerebral hemorrhage with
  amyloidosis (HCHWA) 198, 212, 214,
  266
herpes simplex virus (HSV) 186, 193
hierarchical model of neuropsychological
  functions 379–80
hippocampal sclerosis 247–8, 253
hippocampal sclerosis dementia (HSD)
  248
index

hippocampus
  emotional and behavioral disturbances 418–20, 426
  executive functioning 379
  memory dysfunction 319–21, 324–5
  neurodegeneration 239
  neuroimaging 511, 513–16, 524, 538, 541–2
  sleep disturbances 486, 487–8
history taking 8–10
HIV see human immunodeficiency virus
HNE see 4-hydroxy-2-nonenal
homeostatic rhythm 484
hormone replacement therapy (HRT) 46
Hounsfield units (HU) 510
HRT see hormone replacement therapy
HSD see hippocampal sclerosis dementia
HSV see herpes simplex virus
HTE see hypertensive encephalopathy
HU see Hounsfield units
hue contrast 468–9
human immunodeficiency virus (HIV) 193
Huntington’s disease (HD) 187–8
  electroencephalography 584
  memory dysfunction 317, 328–9
  molecular neuroimaging 562, 564
  visuospatial dysfunction 466
hydrocephalus 4, 185–6
4-hydroxy-2-nonenal (HNE) 283
hypercholesterolemia 111–12, 113
hyperorality 395
hypertension 108, 111, 113–15
hypertensive encephalopathy (HTE) 192
hypothyroidism 190–1
hypometabolism
  emotional and behavioral disturbances 427
  neuroimaging 538, 560–2
  visuospatial dysfunction 469
hypoperfusion 105, 108
hypothyroidism 190–1
hypoxic-ischemic injury 317
I-123 MIBG scintigraphy 139
IA see intracranial aneurysms
IADL see instrumental activities of daily living
IBMPFD see inclusion body myopathy with
  Paget’s disease and frontotemporal
dementia
ibuprofen 44
ICD-10 see International Classification of
  Disease
IDE see insulin-degrading enzyme
ideational apraxia 24
IDENTITY study 49
idiomotor apraxia 24
IFC see inferior frontal cortex
IGAP see International Genomics of AD
  Project
IGF-1 see insulin-like growth factor
immune reconstitution inflammatory
  syndrome (IRIS) 185
immunotherapies 47–8
implicit memory 315–16, 485–7, 586–7,
  588
impulse control 373, 388, 396
incidental learning 12, 21
inclusion body myopathy with Paget’s
disease and frontotemporal dementia
  (IBMPFD) 156, 158
incontinence 58–9
Indiana Alzheimer’s Disease Research
  Center National Cell Repository
  207–8
infections
  dementia syndrome 185, 192, 193
  differential diagnosis 9
inferior frontal cortex (IFC) 356–7
inferior parietal lobes 460–1
inferolateral temporal lobes 326–7, 348–9
inflammation
  Alzheimer’s disease 17–18
  amyloid cascade hypothesis 265–6, 271
  dementia syndrome 185, 186–7
  drug targets 301
  vascular dementia 102–3
inhibitory control 373, 388, 395–6
initiation 373
instrumental activities of daily living
  (IADL) 100–1
insulin-degrading enzyme (IDE) 266
insulin-like growth factor (IGF-1) 287–8
interdaily variability 491–2
interictal encephalopathy 192–3
interleukins 102
International Classification of Disease (ICD-10) 94–5
International Genomics of AD Project (IGAP) 211
inter-rater reliability 10
interunical distance 513–14
intracranial aneurysms (IA) 214
intracranial hypertension 187
intracranial volume measure 509–10
intradaily variability 491–2
intravenous immunoglobulin (IVIG) 305
IRIS see immune reconstitution
inflammatory syndrome
irreversible encephalopathies 181–9
ischemia 282
ischemic hippocampal sclerosis 253
ischemic stroke 213
ischemic vascular dementia (IVD) 93–4, 97
isotropic diffusion 523
IVD see ischemic vascular dementia
IVIG see intravenous immunoglobulin

Jackson’s Dilemma (Murdoch) 346
JC virus 185
JNK–kinase pathway 279, 287–8
judgment 375–6

kainate receptors 282
kinase inhibitors 287
Korsakoff syndrome 317
Kraepelin, Emil 3–4

lacunar infarction 104, 106, 250–1
language disturbances 336–68
Alzheimer’s disease 336, 338–46, 358–9
behavioral targets 359
clinical management 358–9
components of language 336–9
diagnostic specificity 358
electroencephalography 585–6

frontotemporal dementia 152–4, 336, 339, 342–3, 346–59
naming 337–8, 342–4, 350–1, 355–6
narrative discourse 338, 345–6, 351–2, 357–8
phonology 337, 339–40, 347–8, 353–4
progressive non-fluent aphasia 342–3, 352–8
semantic dementia 342–3, 346–52
semantics 337, 340–3, 345, 348–50, 354–6
syntax and grammar 338, 344–5, 351, 356–7
vascular dementia 97
language testing 11, 23–4
large vessel stroke 105
late positive component (LPC) 587
late-onset AD (LOAD)
amyloid cascade hypothesis 267
genetic factors 197–8, 199, 200–10
neuroimaging 561
late-onset depression 28
latrepirdine 50
LBD see Lewy body dementias
learning disturbances 96, 543
left frontal-predominant FTD 145, 148
leukodystrophy 188
levodopa 140–1
Lewy bodies
Alzheimer’s disease 134, 241
neuropathology 241–2
vascular dementia 103
see also dementia with Lewy bodies
Lewy body dementias (LBD) 4
lexical-semantic binding hypothesis 347, 351
limbic encephalitis 186
limbic system 378–9, 417–18
linkage studies
Alzheimer’s disease 204–6
vascular dementia 211–12, 213
lipoproteins 102–3
litium 51
LOAD see late-onset AD
locomotor activity 492
logopenic progressive aphasia (LPA) 153
long-term depression (LTD) 486
long-term potentiation (LTP) 486
longitudinal functional imaging studies 549
longitudinal MRI studies 515
LP see lumbar puncture
LPA see logopenic progressive aphasia
LPC see late positive component
LTD see long-term depression
LTP see long-term potentiation
lumbar puncture (LP) 13
lupus erythematosis 187
lysosomal cysteine proteases 280–2
mAb see monoclonal antibodies
McDonald criteria 186
magnetic resonance imaging (MRI)
Alzheimer’s disease 507, 511, 512–24
dementia with Lewy bodies 139
dementia syndrome 12–13, 181, 184, 186–7, 188
development of technique 512
emotional and behavioral disturbances 422, 427–8, 433, 436
frontotemporal dementia 163–5
memory dysfunction 315
vascular dementia 95, 98, 106, 108
visuospatial dysfunction 460, 466–7
see also functional MRI
magnetic resonance spectroscopy (MRS) 521–2
magnetic source imaging (MSI) 588
magnetoencephalography (MEG) 575–7, 588–93
maintaining set 374–5, 389–90, 392, 396–7
major depressive disorder (MDD) 429
MAOI see monoamine oxidase inhibitors
MAP see microtubule-associated proteins
MAPT see microtubule-associated tau protein; Multidomain Alzheimer Preventive Trial
MAPT gene 155–8, 160
MCI see mild cognitive impairment
MDD see major depressive disorder
mean length of utterance (MLU) 357–8
medial frontal cortex 377
medial temporal lobe (MTL)
memory dysfunction 318–22, 324–5
neuroimaging 511, 517, 522, 537–43, 544, 547
MEG see magnetoencephalography
MELAS see mitochondrial encephalopathy, lactic acidosis and stroke
memantine
Alzheimer’s disease 40, 43, 301, 303
dementia with Lewy bodies 141
emotional and behavioral disturbances 431, 438
neurodegeneration 290, 292
neuroimaging 547
vascular dementia 113
memory dysfunction 315–35
Alzheimer’s disease 20–2, 25
dementia with Lewy bodies 135–6
dementia syndrome 179, 191
electroencephalography 578–9, 583–7
episodic memory 316–26
executive functioning 379, 387
frontotemporal dementia 152, 154
language disturbances 336, 337
magnetoencephalography 589–90
memory systems 315–17
mild cognitive impairment 31
neuroimaging 537–46
procedural memory 316–17, 327–8
semantic memory 316–17, 326–7
sleep disturbances 485–8
vascular dementia 95–7
working memory 316–17, 322, 328–9
memory testing
Alzheimer’s disease 21
dementia syndrome 11–12
frontotemporal dementia 165
mental exercise 17
mental status testing 11–12
metabolic disorders 4, 8, 559–61
metabolic encephalopathy 191
metabolic syndrome 108
metabotropic glutamate receptors (mGlyR) 282
metachromatic leukodystrophy (MLD) 188
methylthioninium chloride (MTC) 305–6
MFS see Middelheim Frontality Score
mGlyR see metabotropic glutamate receptors
MI see myocardial infarctions
MIBG scintigraphy 139
microinfarcts 104, 249, 251–2
Index

microtubule-associated proteins (MAP) 17
dementia with Lewy bodies 561
microtubule-associated tau protein (MAPT) 216, 247
differential diagnosis 562–3
microvascular ischemic disease 22
disease biomarkers 567–8
mid-latency ERPs 582–5
frontotemporal dementia 557, 561, 562
Middelheim Frontality Score (MFS) 387
Huntington’s disease 562
mild cognitive impairment (MCI) 31–4
mild cognitive impairment 558–9, 563, 566
mild dementia syndrome 182
monitoring neurotherapeutics 564
diagnosis 36
molecular neuroimaging 557–74
differential diagnosis 562–3
electroencephalography 580–1, 585–7
mature disease 11
emotional and behavioral disturbances 424, 425, 429
magnetoencephalography 590–2
molecular neuroimaging 536, 541–3, 544–7, 549
treatment 39, 40, 44
neuropathological studies 515–16
visuospatial dysfunction 466
monitoring neurotherapeutics 564
neuropathological studies 515–16
Money Road-Map Test of Direction Sense 466
neuropathological studies 515–16
mood disorders 28
visuospatial dysfunction 466
motion perception 465–7
motor deterioration 187, 189
motivation 372
motor neuron disease (MND)
motor neuron disease 187, 189
elective functioning 393, 395
executive functioning 398
frontotemporal dementia 146, 148–9, 160
emotional and behavioral disturbances 427
memory dysfunction 322–3
language disturbances 339
neuropathology 247
neuropathology 247
MRS see magnetic resonance spectroscopy
MRI see magnetic resonance imaging
MS see multiple sclerosis
MS see multiple sclerosis
MSA see multiple system atrophy
MSA see multiple system atrophy
magnetic source imaging 566–7
MSI see magnetic source imaging
MTC see methylthioninium chloride
MTL see medial temporal lobe
MTP see mitochondrial transition pore
Multidomain Alzheimer Preventive Trial (MAPT) study 308
multifocal diseases 186–7
multi-infarct dementia 92, 249, 250, 391
multiple sclerosis (MS) 186, 317, 329
multiple sclerosis (MS) 186, 317, 329
multiple system atrophy (MSA) 183
multiple system atrophy (MSA) 183
dementia with Lewy bodies 132
executive functioning 400–1
nondemented condition 327
molecular neuroimaging 561, 565
sleep disturbances 493–4
visuospatial dysfunction 473
multiple-choice recognition tests 324
Murdoch, Iris 346
myo-inositol 521–3
myocardial infarctions (MI) 109–10
myoclonus 29
N-acetylaspartate (NAA) 521–4
N-methyl-D-aspartate (NMDA) 283–4, 290–1
N-methyl-D-aspartate (NMDA) antagonists 547
N-methyl-D-aspartate receptor (NMDAR) 282–4, 290–1
N-methyl-D-aspartate receptor (NMDAR) antagonists 37, 43, 267
see also memantine
N400 abnormalities 585–7, 588
NAA see N-acetylaspartate
NAB see Neuropsychological Assessment Battery
naMCI see non-amnestic MCI
naming disturbances 337–8, 342–4, 350–1, 355–6
naproxen 44–5
narrative discourse disturbances 338, 345–6, 351–2, 357–8
National Institute on Aging and the Ronald and Nancy Reagan Institute of the Alzheimer’s Association (NIA-Reagan) 239–40
National Institute of Mental Health (NIMH) 205, 207–8
National Institute of Neurological and Communicative Disorders and Stroke-Alzheimer’s Disease and Related Disorders Association (NINCDS-ADRDA)
Alzheimer’s disease 34
dementia syndrome 14
genetic factors 201
mild cognitive impairment 33
National Institute of Neurological Disorders and Stroke with the Association Internationale pour la Recherché et l’Enseignement en Neurosciences (NINDS-AIREN) 94–5, 99
neurodegenerative disease 28
neurofibrillary tangles (NFT) see plaque and tangle pathology
neuroimaging
dementia with Lewy bodies 138, 546–7, 580, 584, 591
dementia syndrome 12–13, 190–2
emotional and behavioral disturbances 422, 426–8, 433, 436
frontotemporal dementia 163–5, 546, 580
Huntington’s disease 584
language disturbances 341, 347–8, 353
memory dysfunction 329–30
mild cognitive impairment 536, 541–3, 544–6, 580–1, 585–7, 590–2
Parkinson’s disease 546–7, 584
vascular dementia 95, 98–100, 580, 584
visuospatial dysfunction 460–1, 466–7, 473
neuroleptics 140
neurological disturbances 95
neurological syndromes 187
neuronal cell death pathways 277–92
apoptosis 278–80, 284–8
drug targets 301, 306–7
excitotoxicity 282–4, 290–1
necrosis 280–2, 288–9
neuroprotective strategies 277, 284–92
neuronal intermediate filament inclusion disease (NIFID) 160
neuronal loss 244, 425, 515, 538
neuropathology
Alzheimer’s disease 235–40, 515–16, 522
Index

chronic traumatic encephalopathy 248
dementia with Lewy bodies 240–3
frontotemporal dementia 146, 148, 158–9, 243–7
hippocampal sclerosis 247–8
mild cognitive impairment 515–16
vascular dementia 103–4, 249–53
neuroprotective strategies 44–51, 277, 284–92
neuropsychiatric disturbances see
behavioral disturbances
Neuropsychiatric Inventory (NPI/NPI-Q)
emotional and behavioral disturbances 423, 428, 434, 436
executive functioning 381, 386
frontotemporal dementia 165–6, 167
Neuropsychological Assessment Battery (NAB) 381, 384, 385, 460
neuropsychological disturbances
Alzheimer’s disease 21
dementia syndrome 186
executive functioning 371, 379–87, 401
vascular dementia 96–8
visuospatial dysfunction 458, 459–62, 472
neurotransmitters
dementia with Lewy bodies 135, 138
emotional and behavioral disturbances 426–7
molecular neuroimaging 559, 564–5
neurotrophin-3 (NT-3) 287
NF-kB see nuclear factor-kB
NFT (neurofibrillary tangles) see plaque and tangle pathology
NIA-Reagan see National Institute on Aging and the Ronald and Nancy Reagan Institute of the Alzheimer’s Association
nicotinamide 291
NIFID see neuronal intermediate filament inclusion disease
NIMH see National Institute of Mental Health
NINCDS-ADRDA see National Institute of Neurological and Communicative Disorders and Stroke-Alzheimer’s Disease and Related Disorders Association
NINDS-AIREN see National Institute of Neurological Disorders and Stroke with the Association Internationale pour la Recherché et l’Enseignement en Neurosciences
nitric oxide (NO) 282–3
NMDA see N-methyl-D-aspartate
NMDAR see N-methyl-D-aspartate receptor
NO see nitric oxide
non-amnestic MCI (naMCI) 32
non-declarative memory 315–16, 485–7, 586–7, 588
non-fluent aphasias 182–3
non-lacunar infarction 104
non-rapid eye movement (NREM) 484–5, 488, 491
nonsteroidal anti-inflammatory drugs (NSAID) 44–5, 306
normal aging
Alzheimer’s disease 26, 31
dementia syndrome 5, 6–7
mild cognitive impairment 31
normal pressure hydrocephalus (NPH) 185–6, 326
normal sleep 483–5
Notch receptors 268, 272
Notch3 gene 211
NP (neuritic plaques) see plaque and tangle pathology
NPH see normal pressure hydrocephalus
NPI see Neuropsychiatric Inventory
NPI/NPI-Q see Neuropsychiatric Inventory
NREM see non-rapid eye movement
NSAID see non-steroidal anti-inflammatory drugs
NT-3 see neurotrophin-3
nuclear factor-kB (NF-kB) 286–7, 290
nursing home care 61
nutritional disorders 9, 12
obesity 109
obsessive–compulsive disorder (OCD)
frontotemporal dementia 151, 152, 166
memory dysfunction 317, 329
obstructive sleep apnea (OSA) 13, 193
occipital lobes
  executive functioning 378
  magnetoencephalography 589
  visuospatial dysfunction 457, 469, 472
occupational deterioration 8
OCD see obsessive–compulsive disorder
odds ratios 202–3
OFC see orbitofrontal cortex
office testing 10–12
olanzapine 140, 432
olivopontocerebellar degeneration 328
omega 3 supplementation 308
open-class words 351–2
Oppenheimer–Brownell variant CJD 184
optic flow 465–6
orbitofrontal cortex (OFC)
  emotional and behavioral disturbances
    417, 419–20, 426, 433
  executive functioning 377
organizing function 375, 390, 397
OSA see obstructive sleep apnea
P50 abnormalities 584–5
p53 307
P300 abnormalities 583–4, 588
pacing behavior 59–60
paired-associate word tasks 488
paired helical filaments (PHF) 162, 238–9, 279–80
palilalia 24
parahippocampus 319, 378–9, 538, 542
paraneoplastic limbic encephalitis 186
paraphasias 353–4, 355
parietal lobes
  executive functioning 377
  language disturbances 350–1
  magnetoencephalography 589
  neuroimaging 516–17, 521, 538–9
  visuospatial dysfunction 469, 472
parkinsonism
  Alzheimer’s disease 15
  dementia with Lewy bodies 133, 136–8, 140–1
  dementia syndrome 188, 190–1
  emotional and behavioral disturbances 432
  frontotemporal dementia 215–16
  frontotemporal dementia (FTD) 166
  genetic factors 216
  molecular neuroimaging 565
  neuropathology 247
Parkinson’s disease with dementia (PDD)
  approved treatments 302
  differential diagnosis 131–2, 133, 136
  executive functioning 397–8
  pathophysiology 134
Parkinson’s disease (PD)
  differential diagnosis 131–2, 133, 136, 138, 181
  electroencephalography 584
  language disturbances 339
  macroscopic appearance of brain 242
  memory dysfunction 317, 325, 327–9
  molecular neuroimaging 561, 565
  neuroimaging 546–7
  neuropathology 241
  pathophysiology 132, 134–5
  sleep disturbances 493–4
  staging of brain pathology 243
  visuospatial dysfunction 458, 460, 473
paroxetine 165
pattern of vulnerability 158–9
PD see Parkinson’s disease
PDD see Parkinson’s disease with dementia
PDE4D see phosphodiesterase 4D gene
perceptual testing 22–3
perfusion-weighted imaging (PWI) 98–9
periodic limb movements of sleep (PLMS) 489, 494–5
perirhinal cortex 337, 349
peroxisome proliferators-activated
  receptor-gamma (PPAR-gamma) antagonists 51
perseverance 374, 388
person-centered bathing 56
personal identity 21
personality disturbances 25–7, 424
PET see positron emission tomography
PGRN see progranulin
pharmacological treatments
  alternative medicines 307
  Alzheimer’s disease 36–55
  approved treatments 302–3
  candidate therapies 301–11
  dementia with Lewy bodies 135, 139–41
  dementia syndrome 191, 192
drug targets in AD 304–7
electroencephalography 584–5, 592–3
emotional and behavioral disturbances 431–3, 435, 437–8
failed therapies 303–4
frontotemporal dementia 165–6
functional MRI 547–8
future directions 307–8
molecular neuroimaging 564
primary and secondary prevention 303
risk factor modification 303
vascular dementia 112–13
visuospatial dysfunction 470–2
phenytoin 29
PHF see paired helical filaments
phonemes 337, 355–6
phonological disturbances 337, 339–40, 347–8, 353–4
phonological dyslexia 354
phosphatidyl inositol binding clathrin assembly protein (PICALM) 206
phosphatidyl inositol-3 kinase (PI3k/Akt) pathway 287
phosphatidylcholine 521
phosphodiesterase 4D gene (PDE4D) 213
PI3k see phosphatidyl inositol-3 kinase
PI3k/Akt signaling pathway 271
PiB see Pittsburgh Compound-B
PICALM see phosphatidyl inositol binding clathrin assembly protein
Pick cells/bodies 146–7, 157, 161–2, 245
Pick’s disease 145, 161–2
neurodegeneration 244, 245
sleep disturbances 494–5
see also frontotemporal dementia
Picture Description Test 467
picture naming errors 463–4, 586
pioglitazone 51
Pittsburgh Compound-B (PiB) 165, 540, 543, 545, 549, 566
PKB/Akt signaling pathway 290
PKC see protein kinase C
planimetric CT measures 510
planning function 375, 390, 397
plaque and tangle pathology
amyloid cascade hypothesis 262, 269
chronic traumatic encephalopathy 248
dementia syndrome 8
drug targets 305–6
emotional and behavioral disturbances 425
frontotemporal dementia 157, 160, 161, 246
neuromaging 515, 538
neuronal cell death pathways 277, 279–80, 283–4, 287
neuropathology 236, 237–8
vascular dementia 103–4, 250–1
plasma biomarkers 35–6
platelet APP isoform ratio 36
PLMS see periodic limb movements of sleep
PML see progressive multifocal leukoencephalopathy
PNFA see progressive non-fluent aphasia
POGRN see progranulin
polypharmacy
dementia syndrome 192
differential diagnosis 8
emotional and behavioral disturbances 431
polysomnography 487–8, 490–1, 493–4
positron emission tomography (PET) 559, 561–6
Alzheimer’s disease 516, 535–8, 540, 543–5, 549
dementia with Lewy bodies 139
electroencephalography 579, 581
emotional and behavioral disturbances 422, 426–8, 433
frontotemporal dementia 163–5
language disturbances 341, 353
memory dysfunction 315
visuospatial dysfunction 460–1
see also molecular neuroimaging
possible AD 14
possible dementia 5
posterior cingulate cortex 521, 538, 560–1
posterior cortical atrophy 469–70
posterior parietal cortex 521, 538
posterior temporoparietal cortex 560–1
PPA see primary progressive aphasia
PPAR-gamma see peroxisome proliferators-activated receptor-gamma
pramipexole (PPX) 285
praxis testing 11, 23, 24
prednisone 44–5
prefrontal cortex (PFC)
emotional and behavioral disturbances 419–20, 426, 433, 437
executive functioning 370, 376–9
memory dysfunction 328–9
metabolism 100
neuroimaging 539
prefrontal-subcortical circuits 379
presenile dementia 4
presenilins (PSEN)
amyloid cascade hypothesis 263, 267–8, 271
genetic factors 199–200
neurodegeneration 235
neuroimaging 544–5
present history see activities of daily living
presymptomatic phases 559
primary prevention 303
primary progressive aphasia (PPA)
dementia syndrome 182–3
executive functioning 393
frontotemporal dementia 147–8, 150, 153
language disturbances 338
prion gene mutations 184
probabilistic atlases 517
procedural memory 22, 316–17, 327–8
progranulin (PGRN) 155–6, 157–8, 218, 247
progressive amnestic dysfunction see dementia of the Alzheimer type
progressive cognitive decline 133, 135–6
progressive multifocal leukoencephalopathy (PML) 185
progressive non-fluent aphasia (PNFA)
executive functioning 393–4, 395–6
frontotemporal dementia 145–6, 148, 150, 153, 154
language processing 342–3, 352–8
progressive supranuclear palsy (PSP)
dementia syndrome 181
emotional and behavioral disturbances 434
executive functioning 400
frontotemporal dementia 146, 154, 157, 160–1, 162
memory dysfunction 317, 326, 329
neuropathology 244, 246
sleep disturbances 494–5
proline-rich polypeptide complex (PRP) 50–1
promodal phases 558–9
protective factors 17
protein kinase C (PKC) 288
PRP see proline-rich polypeptide complex
PSEN genes 155, 199–200, 235
pseudodementia 8
pseudolaminar necrosis 253
PSP see progressive supranuclear palsy
psychiatric disorders 9
psychomotor abilities 96, 98
PWI see perfusion-weighted imaging
pynagenol 286
quantitative EEG (qEEG) 577–81, 589, 591
quantitative MRI (Q-MRI) 519–20
quetiapine 140, 143, 432
11C-raclopride 565
radial motion 466–7
radioligands 560
rapid eye movement (REM) 484–5, 486–7, 489–91, 493–4
rapid forgetting 324, 587
rate markers 35
rating scales 10–11
RBD see REM sleep behavior disorder
rCBF see regional cerebral blood flow
reaction times 468
reactive oxygen species (ROS) 280, 282–3, 286
rebound phenomena 22
recognition
Alzheimer’s disease 21
dementia syndrome 6–7
eletroencephalography 586–7
recognition memory 379, 539–43
recollection 587
regional cerebral blood flow (rCBF) 488
regulated intramembrane proteolysis (RIP) 268
reliability of data 10
REM see rapid eye movement
REM sleep behavior disorder (RBD) 489–90, 494
dementia with Lewy bodies 135, 137, 142–3
remote general memory 22
repetition suppression 542–3
repetitive behavior 388
restless leg syndrome (RLS) 193, 489, 494
reversible encephalopathies 180–1, 189–93
Rey–Osterrieth Complex Figure Test (ROCFT) 381, 382, 460, 488
RFFT see Ruff Figural Fluency Test
Ribot’s law 317–18
RIP see regulated intramembrane proteolysis
risperdal 432
risperdone 437–8
rivastigmine
Alzheimer’s disease 40–1, 43–4, 302
dementia with Lewy bodies 140–1
vascular dementia 113
RLS see restless leg syndrome
Road-Map Test of Direction Sense 466
ROCFT see Rey–Osterrieth Complex Figure Test
rofecoxib 44–5
ROS see reactive oxygen species
SBD see REM sleep behavior disorder
Ruff Figural Fluency Test (RFFT) 381, 383
safety issues 58
SAH see aneurysmal subarachnoid hemorrhage
SALA see selective Aβ lowering agents
scanning 467
schizophrenia 205, 329
SCI see subjective cognitive impairment
SCN see suprachiasmatic nucleus
screening tests 10–11
scylo-inositol 305
SD see semantic dementia
SDB see sleep disordered breathing
secondary prevention 303
secretase modulators 48–9
secretases 264–6, 267, 272
selective Aβ lowering agents (SALA) 49–50
selective norepinephrine reuptake inhibitors (SNRI) bodies 142
selective serotonin reuptake inhibitors (SSRI)
Alzheimer’s disease 28
dementia with Lewy bodies 140
emotional and behavioral disturbances 431–2, 438
frontotemporal dementia 165–6
selegiline 45
self-awareness 372–3, 388, 394–6
self-monitoring 376
semantic dementia (SD)
dementia syndrome 183
executive functioning 393–4, 395–6
language disturbances 342–3, 346–52
memory dysfunction 317, 326–7
semantic memory 316–17, 326–7
electroencephalography 585–6, 588
frontotemporal dementia 154, 165
language disturbances 337, 340–3, 345, 348–50, 354–6
neuroimaging 539–40, 542
senile dementia 92
senile plaques see plaque and tangle pathology
sensory gating 584–5
sensory-functional theory 344
serological testing 13
serum-induced kinase (SNK) 283
7-Minute Screen 11, 322–3
sexual behavior
Alzheimer’s disease 29, 56
frontotemporal dementia 151, 152
SHARE study 115
shifting set 374–5, 389–90, 392, 396–7
Short Portable Mental Status Questionnaire 11
sicca syndrome 187
signal transduction cascades 301, 306–7
Index

Similarities test 381, 385
similarity-based training 355
single nucleotide polymorphisms (SNP) 208–10
single photon emission computed
tomography (SPECT) 559, 561–2
dementia with Lewy bodies 139
dementia syndrome 184, 187
frontotemporal dementia 163, 164
visuospatial dysfunction 461, 467
see also molecular neuroimaging
SIVD see subcortical ischemic vascular
dementia
sleep disordered breathing (SDB) 489–90
sleep disturbances 483–503
aging pathologies 489–90
Alzheimer’s disease 28, 34, 483, 490–3
circadian rhythm 483, 484, 491–5
dementia with Lewy bodies 133, 135,
137, 142–3, 493–4
dementia syndrome 191, 193
electrophysiological processes 484–5
memory functions 485–8
normal sleep 483–5
Parkinson’s disease 493–4
vascular dementia 495
SLF see superior longitudinal fasciculus
slow-wave activity 578, 580, 589, 591, 593
small vessel disease 249, 250–2
small vessel disease with dementia 391
small vessel stroke 106
smoking 108–9
SNK see serum-induced kinase
SNP-Health Association Resource (SHARe) study 115
SNRI see selective norepinephrine reuptake
inhibitors
social behavior disturbances 25–7
social function 14
social history 10
social-awareness 372–3, 388, 394–6
SORL1 gene 15–16
source localization 588–9
SP (senile plaques) see plaque and tangle
pathology
SPAR see spine-associated Rap GTPase
activating protein
spatial localization 457–8, 464–5, 467–8
see also visuospatial dysfunction
SPECT see single photon emission
computed tomography
speech disorders 152–4, 187
spindle density 488, 493
spine-associated Rap GTPase activating
protein (SPAR) 283
spongiform encephalopathy 183–4
sporadic AD 269
SQUID see superconductive quantum
interference devices
SSRI see selective serotonin reuptake
inhibitors
stage markers 35
state markers 34
statins 46–7, 111–12, 290
Steele–Richardson–Olszewski syndrome see
progressive supranuclear palsy
stereomotion 466–7
stimulus salience 462–5
strategic infarct dementia 250, 252–3, 391
stress-induced apoptosis 280
stroke aphasia
 genetic factors 212–13
language disturbances 338, 354
memory dysfunction 328
vascular dementia 96, 99, 105–6, 112
Stroop Color-Word Test 381, 383, 388, 398
subarachnoid space volume (SVI) 508–10
subcortical arteriosclerotic
leukoencephalopathy see Binswanger’s
disease
subcortical ischemic vascular dementia
(SIVD) 94
subcortical Lewy bodies 134, 138
subcortical vascular dementia (SVD) 93–4
subjective cognitive impairment (SCI) 33
substance abuse 191
substantia nigra 236–7, 242, 244, 247
sulfated glycosaminoglycan (GAG) 50
sulfatide 102
sundowning 28, 470
superconductive quantum interference
deVICES (SQUID) 575–6
superior longitudinal fasciculus (SLF) 377,
378
suprachiasmatic nucleus (SCN) 492–3
surface dyslexia 347–8
susceptibility genes 15–16
SVD see subcortical vascular dementia
SVI see subarachnoid space volume
Swedish Study of Dementia in Twins 200
symptomatic therapies 37–8, 39–43
synaptic degeneration 18
synaptic plasticity 486
syntactical disturbances 338, 344–5, 351, 356–7
synucleinopathies 132–3, 137, 493–4
syphilis 13
systemic vasculitis 187
T2 brain mapping 519
tacrine 302
talker normalization 339
TAR DNA-binding protein 43 kDa (TDP-43) 159, 162–3, 247
tarenflurib 49, 304
task impurity problem 380
tau protein
Alzheimer’s disease 47, 51
amyloid cascade hypothesis 263, 266–7, 270–1
dementia with Lewy bodies 132
drug targets 305–6
frontotemporal dementia 155–7, 159–62, 182–3, 216–17, 244, 245–7
neuronal cell death pathways 284
sleep disturbances 494–5
taxonomic hierarchies 349
TBI see traumatic brain injury
TCA see tricyclic antidepressants
TDP-43 see TAR DNA-binding protein 43 kDa
template-driven warping techniques 517–18
temporal lobes
Alzheimer’s disease 236–7
emotional and behavioral disturbances 427
executive functioning 378
language disturbances 337, 348–9, 358
memory dysfunction 318–21, 324–7
neuroimaging 516–17
visuospatial dysfunction 460
test batteries 381, 384–5
test–retest reliability 10
testosterone therapy 46
Three Words–Three Shapes (TWTS) tests
thyroid-associated parkinsonism 190–1
thyroid dysfunction 190–1
thyroid stimulating hormone (TSH) 12
TIA see transient ischemic attacks
TNF-α see tumor necrosis factor-alpha
TOMM40 204
top-down modulation 369
topographic disorientation 459–60
toxic disorders 9
toxic encephalopathy 192
Trail Making Test 381–3, 389, 392, 396–8, 459
trait markers 35
tramiprosate 304, 305
transentorhinal cortex 239
transient global amnesia 317
transient ischemic attacks (TIA) 212
traumatic brain disease 9
traumatic brain injury (TBI) 282
trazodone 165–6
tricyclic antidepressants (TCA) 432
trinucleotide repeat syndromes 187–8
truncal choreiform movements 187–8
TSH see thyroid stimulating hormone
TTR see type–token–ratio
tumor necrosis factor-alpha (TNF-α) 102, 278, 290
tumor-related conditions see neoplasms
TUNEL techniques 280
twin studies 200–1
TWTS see Three Words–Three Shapes
type–token–ratio (TTR) 346
ubiquitin
dementia with Lewy bodies 132, 242
frontotemporal dementia 159–61, 162–3, 183, 218, 244, 247
UHC-L1 242
urinary incontinence 59
utilization behavior 373
Index

VaD see vascular dementia
valosin containing-protein (VCP) 155–6, 158
valproate (VPA) 29, 51, 288
variant CJD (vCJD) 184
vascular atherosclerosis 109–10
vascular cognitive disorder (VCD) 94
vascular cognitive impairment (VCI) 92–3, 114
vascular dementia (VaD) 92–130
  age at onset 107, 391
  apolipoprotein E 214–15
  arteriosclerosis 103, 106–7
  autosomal dominant forms 211–12
  biomarkers 102–3
  cardiovascular disease 109–10
  co-morbidities 108–10
  cognitive deficits 95
  definitions 92–3
  diagnosis and clinical features 93–103
  diagnostic criteria 94–5, 96
  differential diagnosis 9, 97, 104, 562–3, 580
  electroencephalography 580, 584
  epidemiology 4, 93
  executive functioning 390–2, 395
  functional impairments 95, 100–2
  future directions 113–15
  genetic factors 107–8, 115, 211–15
  linkage studies 211–12, 213
  memory dysfunction 317, 325
  molecular neuroimaging 562–3
  neuroimaging 95, 98–100
  neurological disturbances 95
  neuropathology 103–4, 249–53
  neuropsychological disturbances 96–8
  non-autosomal dominant forms 213–14
  pathophysiology 105–7
  pharmacological treatment 112–13
  plaque and tangle pathology 103–4
  risk factors 93, 107–10
  sleep disturbances 495
  stroke-induced cognitive impairment 96, 99, 105–6, 112
  treatment and intervention 111–13
  vascular risk factors 108–9, 111–12, 115
  visuospatial dysfunction 459, 473–4

VBM see voxel-based morphometry
VCD see vascular cognitive disorder
VCI see vascular cognitive impairment
vCJD see variant CJD
VCP see valosin containing-protein;
  violin-containing protein
VEN see von Economo neurons
ventricular volume index 509–10
ventrolateral prefrontal cortex 377
verbal fluency tests 383
violin-containing protein (VCP) 218
visual agnosias 23
visual feature knowledge 348–50
visual hallucinations
  dementia with Lewy bodies 131, 133–4, 138, 140–2
  dementia syndrome 184
  visual search 468–9
  visual signal strength 462–3
  visual variant AD 469–70, 475
visuoconstruction 97–8
visuoperceptual disturbances 96–8, 342
visuospatial dysfunction 457–82
  Alzheimer’s disease 22–3, 457–75
  causes and characteristics 458, 462–9
  dementia with Lewy bodies 135, 458, 472–3
  dementia syndrome 11
  electroencephalography 579
  frontotemporal dementia 153, 154, 459, 474
  heterogeneity of AD presentation 458, 469–70
  neuroimaging 544–5
  neuropsychological studies 458, 459–62, 472
  Parkinson’s disease 458, 460, 473
  treatments 458, 470–2
  vascular dementia 459, 473–4
  visual variant AD 469–70, 475
vitamin B 304, 307
vitamin B12 9, 12, 190
vitamin E 45, 306
volition 372
volumetric CT measures 510
von Economo neurons (VEN) 159
voxel-based morphometry (VBM) 341, 351, 353, 358, 518
VPA see valproate
vulnerability, pattern of 158–9

WAIS see Wechsler Adult Intelligence Scales
wandering behavior 59–60
WCST see Wisconsin Card Sorting Test
Wechsler Adult Intelligence Scales (WAIS) 381, 385
Whipple's disease 193
white matter
  executive functioning 370
  neuroimaging 513, 518–19
  neuropathology 236, 250–2
  vascular dementia 103–4
whole-brain atrophy 517–18

Wilson's disease 188–9
Wisconsin Card Sorting Test (WCST) 381–2, 388, 390, 401
WM see working memory
WMH see white matter hyperintensities
word-congruency studies 586
word deafness 337
word-finding difficulties 23–4
working memory (WM) 316–17, 322, 328–9
  Alzheimer's disease 22, 25
  electroencephalography 583–4
  executive functioning 374, 388–9, 392, 396, 398
  language disturbances 336, 356–7
  magnetoencephalography 590

X-ray computed tomography see computed tomography