

## SUBJECT INDEX TO VOLUME 3

- Affinity chromatography ..... 55  
 agarose gels in ..... 55  
 dextrans in ..... 58  
 methacrylate polymers in ..... 59  
 modified acrylamide in ..... 59  
 porous glass beads in ..... 62  
 porous/nonporous silica in ..... 62
- Allergens ..... 134
- Alzheimer's disease (AD) ..... 81  
 animal models of ..... 88  
 causes of ..... 81  
 cell culture models of ..... 91  
 clinical proteomics in ..... 86  
 CSF in ..... 87  
 2D LC/MS/MS of ..... 85  
 2D PAGE followed by MALDI fingerprinting  
 for ..... 83  
 diagnosis of ..... 81,94  
 drug discovery in ..... 95  
 electrospray ionization Tandem mass  
 spectrometry (ESIMS/MS) of ..... 84  
 FTMS of ..... 86  
 functional proteomics of ..... 86  
 genomics/proteomics of ..... 81,94  
 glycosylation in ..... 92  
 oxidation in ..... 92  
 PAGE with liquid chromatography in ..... 84  
 phosphorylation in ..... 94  
 plasma in ..... 86  
 post-translational modifications of ..... 94  
 quantitative proteomics of ..... 85
- Aminoacyl-tRNA synthetase ..... 233  
 and interacting multifunctional proteins ..... 235
- Antibody ..... 218  
 in nature ..... 218
- Antibody-antigen interaction ..... 271  
 association kinetics analysis of ..... 274  
 determination of binding constant for ..... 271  
 determination of maximum binding ratio for .. 280  
 determination of stoichiometry for ..... 271,278  
 equilibrium analysis of ..... 272  
 multiple equivalent-site interaction mode for .. 276  
 multisite interaction mode for ..... 278  
 one to one interaction mode for ..... 275  
 real-time kinetics of ..... 272  
 role of surface plasmon resonance ..... 271
- Asparagine ..... 44
- Bioinformatic standards ..... 119  
 for proteomics-oriented mass spectrometry .... 119
- $\gamma$ -Carboxyglutamic acid ..... 44
- Carboxyl group ..... 43  
 esterification of ..... 43
- Cardiac transplantation ..... 152  
 identification of cardiac antigens/  
 autoantibodies in ..... 152
- Cardiovascular diseases (CVD) ..... 147  
 role of posttranslational modifications ..... 154  
 role of vascular proteomics ..... 155
- Chemical cross-linking ..... 1  
 applications of ..... 16  
 automated peptide assignments for ..... 11  
 available software tools for detection of ..... 10  
 computation of distance constraints of ..... 13  
 computational approaches to tertiary structure  
 prediction from ..... 11  
 ESI Tandem MS instruments for ..... 10  
 Fourier transform-ion cyclotron resonance  
 (FTICR) MS instruments for ..... 10  
 identification of intra-molecular/ intermolecular  
 interactions of protein molecules by ..... 16  
 integrating distance constraints into *ab initio*  
 structure prediction of ..... 15  
 MALDI-TOF-MS instruments for ..... 9  
 mass spectrometry based analysis of ..... 8  
 NIH-XL for ..... 11  
 3D structures of proteins/protein complexes from 1  
 using distance constraints to rank preliminary  
 structural models of ..... 14  
 X-link for ..... 11
- Chemical derivatisation ..... 219  
 strategies relying on ..... 219
- Chemical modification ..... 34  
 acylation in ..... 35  
 alkylation in ..... 36  
 carbamylation in ..... 35  
 of thiol group ..... 37  
 reduction/substitution in ..... 37
- Coagulation factors ..... 139
- Collectins ..... 139
- Elongation factors ..... 239
- Extracellular matrix (ECM) ..... 132
- Guanidination ..... 35
- Guanidino group ..... 44  
 reactions with 1,2,1,3-diketones ..... 44
- Hydrophobic proteins (hyppos) ..... 129  
 apoptosis by intracellular based ..... 137  
 endogenous based ..... 131  
 exogenous based ..... 133  
 extracellular based ..... 132  
 intracellular based ..... 131
- Hydroxyl group ..... 42
- Hyppo-handling system (HHS) ..... 137  
 extracellular based ..... 137

- Imidazole ..... 41  
 acylation of ..... 42  
 hydrogen/deuterium (H/D) exchange of ..... 42  
 oxidation of ..... 42
- Immobilized metal affinity chromatography (IMAC) 114
- Immunology ..... 259  
 antigen-antibody complexes in ..... 260  
 applications of molecular dynamics  
 simulations in ..... 259  
 computational predictive methods in ..... 267  
 MHC/T cell receptor complexes in ..... 263
- Indole ring ..... 41  
 chemical cleavage of ..... 41  
 oxidation of ..... 41
- Lipids ..... 132  
 transport system for ..... 139
- Living organisms ..... 129  
 missed proteome in ..... 129  
 role of Hyppo system ..... 129
- Lung cancer ..... 23  
 early detection of ..... 23
- Mass spectrometry (MS) ..... 1,33,119  
 applications of ..... 16  
 bioinformatics standards for proteomics-  
 oriented ..... 119  
 classical methods in chemical modification of .. 33  
 for representation of proteomic experiments/  
 results ..... 123  
 identification of intra-molecular/ intermolecular  
 interactions of protein molecules by ..... 16  
 N-terminal modification for ..... 46  
 3D structures of proteins/protein  
 complexes from ..... 1
- Molecular dynamics (MD) simulation ..... 259  
 immunological systems studied by ..... 260
- Nucleotide-binding oligomerization domain (NOD) .. 136
- Pathogen-associate molecular pattern (PAMP) ..... 133
- Peptides ..... 4  
 by inter-molecular cross-linking ..... 4  
 by intra-molecular cross-linking ..... 4  
 by proteolytic digestion of cross-linked  
 products ..... 4  
 detection of cross-linked ..... 8  
 formed by intra-molecular/inter-molecular  
 cross-linking ..... 4  
 strategies for mass spectral analysis of ..... 4
- Phenol ..... 41  
 acylation of ..... 42  
 hydrogen/deuterium (H/D) exchange of ..... 42  
 oxidation of ..... 42
- Phosphopeptide ..... 217  
 aluminum oxide/hydroxide for ..... 220
- immobilized metal affinity chromatography  
 (IMAC) for ..... 219  
 metal oxide affinity chromatography  
 (MOAC) for ..... 219  
 role of dye technology ..... 222  
 titania/zirconia for ..... 219
- Phosphoprotein ..... 113  
 based enrichment methodologies ..... 113  
 chemical modifications of ..... 113  
 IMAC for ..... 114
- Phosphoproteomics ..... 113,249  
 confirmation of ..... 252  
 detection of ..... 251  
 enrichment of ..... 249  
 identification of ..... 249  
 quantitative analysis of ..... 253  
 translation of ..... 253
- Phosphoresidue specific antibodies ..... 114
- Phosphorylation motif antibodies ..... 116
- Phosphorylation sites ..... 220  
 antibodies for ..... 220  
 CID/MS<sup>3</sup> fragmentation for ..... 223  
 determination by gas-phase fragmentation  
 techniques in mass spectrometry ..... 222  
 determination of ..... 220  
 electron capture dissociation (ECD) for ..... 223  
 electron transfer dissociation (ETD) for ..... 223  
 post source decay (PSD) for ..... 223
- Phospho-specific antibodies ..... 113  
 as tool for phosphoproteomic studies ..... 113
- Plants ..... 217  
 multisite protein phosphorylation in ..... 217
- Prion's disease ..... 171
- Proteins ..... 1,33,55  
 affinity membranes in ..... 69  
 amine-reactive cross-linkers for ..... 2  
 $\alpha/\epsilon$ -amino groups of ..... 35  
 biochemical/computational overview of ..... 1  
 chemical modification of ..... 34  
 classical methods in chemical modification of .. 33  
 cleavage of ..... 34  
 cross-linking reagents for ..... 2  
 C-terminal sequencing of ..... 48  
 identification/sequencing of ..... 34  
 ladder sequencing of ..... 46  
 magnetic particles in ..... 72  
 monoliths in ..... 66  
 N-terminal ladder sequencing of ..... 46  
 N-terminal sequencing of ..... 46,48  
 photoreactive cross-linkers for ..... 3  
 separation media in affinity chromatography of 55  
 sequencing of ..... 46  
 sulfhydryl reactive cross-linkers for ..... 2
- Protein mosaics ..... 171  
 concept of ..... 171  
 pathological type ..... 173  
 physiological role of ..... 171  
 role in Prion's disease ..... 171

- Protein networks ..... 181  
  computational tools for modeling of ..... 181  
  JARNAC for ..... 187  
  network object model (NOM) for ..... 185  
  road runner for ..... 188  
  role of architecture ..... 183  
  SBML layout module for ..... 186  
  SBML support layout for ..... 186  
  SBW Clapack for ..... 186  
  SBW simulators for ..... 187  
  SBW utility modules for ..... 185  
  software tools for ..... 182  
  stochastic simulators for ..... 189
- Protein phosphorylation ..... 217  
  aluminum oxide/hydroxide for ..... 220  
  biological implications of ..... 217,225  
  detection of ..... 220  
  Edman sequencing for ..... 221  
  enzymatic activity of ..... 226  
  imaging methods for ..... 224  
  immobilized metal affinity chromatography  
  (IMAC) for ..... 219  
  in cell-to-cell trafficking ..... 226  
  in growth control ..... 226  
  in photosynthesis ..... 225  
  in signaling/protein-protein interaction ..... 225  
  in symbiosis ..... 225  
  large scale proteomics studies/multisite  
  protein phosphorylation of ..... 226  
  mass spectrometry based approaches to ..... 224  
  metal oxide affinity chromatography  
  (MOAC) for ..... 219  
  methods based on inductively coupled plasma  
  mass spectrometry for ..... 225  
  mutation analysis of ..... 222  
  peptides for ..... 225  
  quantification of ..... 224  
  role of dye technology ..... 222  
  role of phosphorylation site databases/  
  prediction algorithms ..... 221  
  technical considerations of ..... 217  
  titania/zirconia for ..... 219
- Proteomics ..... 23,33,81,119,147,199  
  analysis from secretomes ..... 157  
  analysis from tissues ..... 155  
  analysis of circulating cells ..... 160  
  analysis of plasma ..... 162  
  analysis of vascular cells ..... 158  
  application of ..... 23  
  approaches to ..... 24  
  bacterial display for ..... 201  
  brain tissue based ..... 86  
  cell-dependent display systems for ..... 199  
  cell-free display systems for ..... 203  
  cell-free protein synthesis for ..... 203  
  chemistry in ..... 33  
  classical methods in chemical modification of .. 33  
  data sets of proteomic methods in ..... 25  
  DNA display for ..... 210  
  eXtensible Markup Language (XML) for ..... 120  
  for early detection of lung cancer ..... 23  
  mRNA display for ..... 206  
  of aging ..... 86  
  of Alzheimer's disease ..... 95  
  of atheroma plaque ..... 155  
  of cardiac myocytes ..... 152  
  of cardiovascular proteomics ..... 147  
  of heart ..... 148  
  of membrane microdomains ..... 151  
  of mitochondria ..... 150  
  of post-mortem AD tissue ..... 88  
  of post-translational modifications in AD ..... 92  
  of proteasomes ..... 151  
  phage display for ..... 200  
  protein display technologies as tools for ..... 199  
  proteomics standard initiative (PSI) for ..... 123  
  ribosome display for ..... 204  
  technology of ..... 24  
  viral display for ..... 202  
  yeast display for ..... 201
- Releasing (termination) factors ..... 240
- Ribosomal proteins ..... 240
- Scavenger receptors (SR) ..... 138
- Surface plasmon resonance (SPR) ..... 271
- Systems biology workbench (SBW) ..... 181  
  analysis tools of ..... 191  
  based web service interface ..... 185  
  language bindings in ..... 184  
  modeling environments of ..... 193  
  modules of ..... 185  
  visual studio add-on to ..... 185
- Thioether group ..... 39  
  *S*-alkylation of ..... 40  
  nucleophilic substitution of ..... 39  
  oxidation of ..... 40
- Thiol group ..... 37  
  alkylation of ..... 38  
  oxidation of ..... 39
- Toll-like receptors (TLRs) ..... 137
- Translation initiation factors ..... 236
- Tumorigenesis ..... 233  
  aminoacyl-tRNA synthetases in ..... 233  
  multifunctional proteins in ..... 233  
  translational components in ..... 233
- Ubiquitination-proteasome system ..... 134
- Vaccine design ..... 259  
  computational method in ..... 259  
  molecular dynamics simulations for ..... 259