

Immunobiology

Zeitschrift für Immunitätsforschung

8 3/4 425/165

Editors

E. D. ALBERT, München · H. BRANDIS, Bonn · H. DEICHER, Hannover · A. DE WECK, Bern · M. P. DIERICH, Innsbruck · K. EICHMANN, Freiburg · M. FELDMANN, London · E. GLEICHMANN, Düsseldorf · K. HAVEMANN, Marburg · H. KIRCHNER, Heidelberg · E. KLEIN, Stockholm · W. KÖHLER, Jena · J. P. LEVY, Paris · K. RESCH, Hannover · G. RIETHMÜLLER, München · K. O. ROTHER, Heidelberg · V. SCHIRRMACHER, Heidelberg · C. SORG, Münster · R. TIMPL, München · R. VAN FURTH, Leiden · H. WAGNER, Ulm · G. WICK, Innsbruck · R. ZINKERNAGEL, Zürich

Editor-in-Chief

D. GEMSA, Hannover

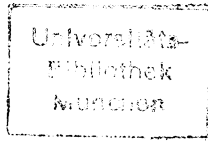
Editorial Advisory Board

R. AVERDUNK, Berlin · J. F. BACH, Paris · H. BALNER, Rijswijk · R. BENNER, Rotterdam · D. BITTER-SUERMANN, Mainz · H. v. BOEHMER, Basel · G. BONNARD, Bern · D. G. BRAUN, Basel · V. BRAUN, Tübingen · J. BROSTOFF, London · A. COUTINHO, Paris · T. DIAMANTSTEIN, Berlin · W. DRÖGE, Heidelberg · P. DUKOR, Basel · P. ERB, Basel · O. GÖTZE, Göttingen · E. GÜNTHER, Freiburg · U. HADDING, Mainz · H. HAHN, Berlin · K. HÁLA, Innsbruck · G. J. HÄMMERLING, Heidelberg · K. U. HARTMANN, Marburg · H. ZUR HAUSEN, Freiburg · M. HESS, Bern · J. KALDEN, Erlangen · B. KINDRED, Tübingen · T. J. KINDT, New York · U. KOSZINOWSKI, Tübingen · E. KOWNATZKI, Freiburg · P. KRAMMER, Heidelberg · W. LEIBOLD, Erlangen · K. LENNERT, Kiel · F. LILLY, New York · J. LINDEMANN, Zürich · E. MACHER, Münster · H. METZGER, Bethesda · V. TER MEULEN, Würzburg · H. J. MÜLLER-EBERHARD, La Jolla · W. MÜLLER-RUCHHOLTZ, Kiel · H. H. PETER, Hannover · H. PETERS, Göttingen · E. PICK, Tel Aviv · O. PROKOP, Berlin · M. QUASTEL, Beer Sheva · J. P. REVILLARD, Lyon · E. P. RIEBER, München · M. RÖLLINGHOFF, Mainz · E. RÜDE, Mainz · E. SCHÖPF, Freiburg · H. G. SCHWICK, Marburg · K. SETHI, Bonn · G. SUNSHINE, London · N. TALAL, San Francisco · G. TILL, Ann Arbor · G. UHLENBRUCK, Köln · M. WAGNER, Jena · H. WEKERLE, Würzburg · P. WERNET, Tübingen

Volume 165



Gustav Fischer Verlag · Stuttgart · New York · 1983



ISSN Immunobiology · Zeitschrift für Immunitätsforschung · 0171-2985

© Gustav Fischer Verlag · Stuttgart · New York · 1983

Alle Rechte vorbehalten

Gesamtherstellung: Druckerei Ungeheuer+Ulmer KG GmbH+Co

Printed in Germany

Klinik für Innere Medizin der Medizinischen Hochschule Lünebeck and * Klinik Hellbachtal der BfA, Mölln, FRG

205. Auto-antibody profiles in patients with Diabetes mellitus, determined by means of an improved fluorescent antibody microtechnic

W. STÖCKER, D. LOOK*, C. SCHUHOSE, K. STÖCKER, K. VENTZKE, and P. C. SCRIBA

Insulin-dependent diabetes mellitus is often associated with one or more autoimmune-disorders, such as idiopathic Addison's disease, Graves'-Basedow's disease, Hashimoto's thyroiditis, and pernicious anaemia. Accordingly, the first report on successful demonstration of islet-cell autoantibodies refers to diabetic patients with polyendocrine deficiencies (1). Autoantibodies to adrenal cortex, thyroid microsomes, and gastric parietal cells occur frequently in patients with diabetes mellitus (2, 3), and detection of such autoantibodies points to an increased risk to develop the corresponding disorders as has been proved for thyroid diseases (4) and pernicious anaemia (5). An autoantibody-screening in diabetics seems to be desirable to find out the patients at risk and the organs in question. Then, diseases arising in addition to the diabetes could be treated in due time and, possibly in future, prevented from occurring. In order to examine how often autoantibodies to a broader range of tissues can be found in diabetes, autoantibody-profiles were established from more than 250 insulin-dependent and -non-dependent diabetic patients, using an improved fluorescent antibody technic. A great number of antigens have been prepared within a very short time: Frozen tissue sections were placed on cover-slips, where they thawed and dried. By help of a glazier's diamond, the cover-slips were divided into many glass-pieces, each bearing a fragment of the sections. The fragments could be prepared in advance and preserved in liquid nitrogen. Section-fragments of 20 different human tissues with blood group 0 were arranged side by side (composite sections), adhered to reaction areas of specially designed glass plates, and incubated in one drop of serum dilution or FITC-labelled goat anti-human-IgG. A single section technic was used to characterize autoantibodies with respect to their Ig-class and their ability to fix complement, and to estimate their concentrations by serial dilution of the sera: Section-fragments were stuck onto reaction areas of hydrophilic-hydrophobic coated glass plates the size of microtiter-plates, each containing 96 reaction areas. By help of another coated glass plate, samples were tested simultaneously, but separated from each other.

In addition to the autoantibodies known to be frequent in diabetes, a number of other autoantibodies were found at a significantly higher rate than in sex and age matched control persons. In most of these cases the corresponding diseases or functional disturbances could not (yet) be observed.

1. G. F. BOTTAZZO, A. FLORIN-CHRISTENSEN, and D. DONIACH. 1974. *Lancet* 2: 1279.
2. A. C. MACCUISH and W. J. IRVINE. 1975. *Clin. Endocrinol. Metab.* 4: 435.
3. R. VOLPÉ. 1981. "Autoimmunity in the endocrine system". Springer-Verlag Berlin.
4. W. J. RILEY, N. K. MAC LAREN, and A. ROSENBLOOM. 1982. *Lancet* 2: 489.
5. W. J. RILEY, P. P. TOSKES, N. K. MAC LAREN, and J. H. SILVERSTEIN. 1982. *Diabetes* 31: 1051.

Authors' Index

- AARDEN, L. A. 35
ACUTO, O. 137
AICHINGER, G. 1
ALHEID, U. 184
ALSENZ, J. 2, 211
ALTISSIMO, M. 166
ANDERSON, M. J. D. 88
ANDRESEN, R. 153, 243
ANDRIGHETTO, G. 240
ARNDT, R. 3, 193
AUER, I. 99
- BAGGIOLINI, M. 33
BALLINARI, D. 186
BALZI, E. 225
BAMBERGER, U. 4, 43, 63, 144, 216
BARZ, D. 111
BASSEWITZ, D. B. VON 242
BATSFORD, S. 5, 218
BAUM, W. 50
BAUMGARTEN, H. 6, 7
BEJARANO, M. T. 403
BELLGRAU, D. 239
BEN-NUN, A. 63
BENNER, R. 200
BENNETT, M. 445
BERGER, P. 8
BERGER, R. 95, 175, 225
BESINGER, U. 101, 211
BESSLER, W. G. 9, 27, 186
BETTENS, F. 10
BETZ, M. 55
BEUSCHER, H. U. 11, 19
BIANCHI, A. T. J. 200
BIRKE, C. 154
BITTER-SUERMAN, D. 16, 24, 61, 233
BITZER, M. 29
BLANCKMEISTER, C. A. 12
BLANKENSTEIN, T. 13
BLITSTEIN-WILLINGER, E. 14
BODENSTEIN, H. 184
BÖCK, G. 56
BÖHRINGER, D. 15
BÖTTGER, E. 16
BOHN, A. 225
BOLDT, C. 29
BOLTZ-NITULESCU, G. 212
BONNARD, G. D. 10
BORELLO, P. 166
BORN, W. 63
BORRONE, D. 166
BOS, L. 1
- BOSSLET, K. 17
BOTZENHARDT, U. 36
BOYD, R. 182
BOYD, R. L. 56
BOZZONE, T. 166
BRADE, H. 18
BRADE, L. 18
BRADE, V. 11, 19
BRAMMSEN, H. 76
BRANDENBURG, D. 159
BRAUCH, H. 115, 143
BRAUN, L. 78
BRENDEL, W. 101, 159
BRIDGE, S. P. 168
BRINKMANN, V. 20
BRÖCKER, E.-B. 21, 242
BROM, H. 108
BROSS, K. J. 73, 153, 243
BRÜGGEN, J. 21, 162
BRUGGER, W. 29
BRUSDEILINS, M. 22, 81
BÜLOWIUS, U. 99, 130
BUHL, R. O. 55
BURGER, R. 23, 24, 66, 67, 215, 233
BURMESTER, G. R. 25, 50
BUSZELLO, H. 26
- CARLS, C. 109
CASCIO, G. 166
CHEN-BETTECKEN, U. 189
CHENG, H. 59
CHUE, B. 222
COLOMBO, M. P. 186
COLOT, M. 127
COOPER, J. 27
COSTABEL, U. 153
CRAMER, M. 139
CREA, A. 108
CUADRA, M. 147
CUMANO, A. M. 194
- DAMERAU, B. 160, 219
DANKO, S. 116
DEENEN, G. J. 1
DEICHER, H. 184
DELANK, H. W. 225
DESSAUER, A. 143
DEUTSCH, K. 64
DIAMANTSTEIN, T. 151, 152
DICKNEITE, G. 28
DIEHL, V. 184
DIERICH, M. P. 2, 198, 211
DIVAKARAN, S. 500
- DÖLKEN, G. 29, 73
DÖRING, N. 17
DÖRKEN, B. 31, 142
DOLDI, K. 30
DOMMASCH, D. 32
DOMZIG, W. 33
D'ONOFRIO, C. 34
DRÄGER, A. M. 35
DRÄGER, R. 100
DREXHAGE, H. A. 228
DRÖGE, W. 26, 129
DRUSCHKY, K.-F. 104
Dwyer, D. D. 181
- EBERT-KAYSER, K. 229
ECKER, B. 36
EICHMANN, K. 27, 37, 136, 171, 175, 235
EISERT, R. 184
EMMRICH, F. 37, 235
ENGLBERGER, W. 233
ENNEN, J. 38
ERNST, M. 38
ERTEL, W. 163
- FABRY, H. 71
FALK, W. 129
FALKENBERG, F. 72, 85, 89, 135
FARRAR, G. H. 147
FEIGE, U. 242
FELLER, A. C. 196
FERBER, E. 36, 43, 80, 192
FIERZ, W. 39
FISCHER, H. G. 40
FITZGERALD, J. 421
FLAD, H.-D. 38, 53, 196, 214
FLEISCHER, B. 41, 42
FLESCHE, I. 43
FLESCHE, E. 78
FÖRSTER, O. 212
FONTANA, A. 39
FRANK, F. 170
FRANKE, W. W. 150
FRIBERGER, P. 111
FRIEDRICH, E. 183
FRISCH, H. 228
FUKS, Z. 432
- GAAG, R. D. VAN DEN 228
GALANOS, C. 18, 133, 140
GARCIA, R. 5
GASSMANN, W. 44
GAUS, W. 475

Regular numbers refer to abstract numbers of the abstract issue of the XV. Tagung der Gesellschaft für Immunologie, October 1983, Vol. 165, No. 3/4. Bold faced numbers refer to page numbers of original articles, Vol. 165, No. 1, No. 2, and No. 5.

- GEBHARD, C. 116
 GEMSA, D. 55, 61, 87, 117, 232
 GERDES, J. 45, 78
 GERSHON, R. K. 222
 GESKE, T. 46
 GIEDL, J. 102
 GIFALDI, A. 445
 GILLERT, K.-E. 147
 GÖTZE, O. 6, 7
 GOKEL, G. 116
 GOLDMANN, W. 146
 GORDON, J. 24
 GORONZY, J. 47, 48, 227
 GOSSRAU, R. 49
 GRAMATZKI, M. 25, 50
 GREEN, D. R. 222
 GROPP, C. 128
 GROSS, W. L. 51, 68
 GROSS-WEEGE, W. 52
 GRUBER, M. 53
 GÜNTHER, E. 195
 GÜNZLER, V. 54
- HADAM, M. R. 170
 HADDING, U. 16, 24, 61, 233
 HÄMMERLING, G. J. 12, 31, 142, 221
 HÄNSCH, G. M. 55, 143
 HAHN, G. 51
 HAHN, H. 149, 178, 213
 HAIMOVITZ, A. 432
 HÁLA, K. 56, 182
 HAMANN, A. 3, 57
 HAMANN, U. 58
 HAMMANN, K. P. 197
 HAMMER, C. 116, 163, 224
 HAMMER, D. K. 144, 216
 HANAUSKE-ABEL, H. M. 54
 HANGOC, G. 59
 HANISCH, F.-G. 147
 HAPKE, C. 22, 81
 HARDT, C. 60
 HARTUNG, H. P. 61, 62
 HAUBECK, H.-D. 63
 HAVEL, A. 38
 HAVEMANN, K. 128
 HAVSTEEN, B. 121
 HEEG, K. 64
 HEIDE, K.-G. 226
 HEIDEBRECHT, H. J. 65
 HEIMPEL, H. 475
 HEINERT, G. 72
 HEININGER, K. 77, 211
 HEINZ, H. P. 66, 67, 175
 HELD, H. 68
 HERMANEK, P. 102
 HERRMANN, F. 69, 173
 HERRMANN, M. X. 70
 HESS, H. 72, 135
 HESS, K. M. 71
 HEYDEN, W. 71
 HEYMANN, E. 196
- HIBY, A. 130
 HIMMELHOCH, S. 46, 169
 HIRAMINE, C. 161
 HIRSCH, F. W. 73
 HÖCKEL, M. 74
 HÖFER, P. 75
 HOFFMANN, A. 197
 HOFSTAETTER, T. 76, 120, 213
 HOHLFELD, R. 77, 211
 HOJO, K. 161
 HOLTER, W. 78, 107, 132, 204
 HOLZMANN, B. 79
 HOPF, U. 140
 HOVESTADT, I. 80
 HUBERTS, H. H. 22, 81
 HÜLTNER, L. 87
 HÜNIG, T. 217
 HUSMANN, M. 23
 HUSSAARTS-ODIJK, L. M. 200
- IHLE, J. N. 207
 ISAKOV, N. 485
 ISAKOVIĆ, K. 82
- JABLONSKI-WESTRICH, D. 57
 JAHN, B. 25
 JANKOVIĆ, B. D. 82
 JANKOVIĆ, D. L. 82
 JOHNSON, J. 77, 79, 237
 JOHNSON, J. P. 83, 185
 JOHNSON, R. B. 27
 JONCOURT, F. 84
 JÜRGENLIEMK, I. 85
 JUNG, G. 27
 JUNG, H. 156
- KABELITZ, D. 86
 KALDEN, J. R. 25, 30, 50, 70, 102, 103, 104, 114, 134, 202
 KALIES, I. 77, 104, 181, 202
 KALLWEIT, K. 71
 KALTHOFF, H. 193
 KALTMANN, B. 87
 KANDZIA, J. 88
 KANTWERK, G. 89
 KANZY, E. J. 120
 KAPP, A. 90, 133
 KARASUYAMA, H. 230
 KASPEREIT, F. 28
 KATOHI, T. 17
 KAUDEWITZ, P. 79
 KAUFMANN, S. H. E. 20, 91, 92, 175
 KEES, U. 87, 93
 KEIL, G. M. 161
 KEISARI, Y. 78
 KEYSSENER, K. 95
 KIESEL, U. 94
- KIRCHNER, H. 30, 95, 175, 225
 KISIELOW, B. 96
 KISIELOW, P. 96
 KITAMURA, K. 230
 KLEIN, E. 403
 KLEIN, S. 97
 KLEMPNAUER, J. 201
 KLINKERT, W. E. F. 98
 KLOPF, D. 99, 130
 KNAPP, W. 78, 107, 124, 132, 204
 KNOBLOCH, C. 100
 KNORR-HELD, S. 101
 KOCH, B. 102, 103, 104, 134
 KOCH, H. 104
 KOCH, M. A. 46, 119
 KOCH, N. 105
 KOCH, S. 106
 KOCHSIEK, K. 99, 130, 131
 KÖCHLING, R. 167
 KÖCK, A. 127
 KÖHL, S. 27
 KÖLLER, U. 78, 107, 124, 132, 204
 KÖLSCH, E. 63
 KÖNIG, W. 52, 71, 108, 180, 210, 225
 KOHL, P. K. 109
 KOLB, H. 94, 159, 183
 KOLB-BACHOFEN, V. 183
 KOLECKI, P. 69
 KOLLER, A. 32
 KOLLER, C. 224
 KOMISCHKE, B. 69
 KOSZINOWSKI, U. H. 110, 161
 KOWNATZKI, E. 97, 393
 KRAFT, D. 15
 KRAMER, M. 107, 111, 112
 KRAMMER, P. H. 58, 87, 93, 96, 117
 KRANZ, B. R. 113
 KRAPP, F. 70, 114
 KRAPP, F. E. 134
 KRAULEDAT, P. 114
 KRAUSSE, A. 121
 KRAWINKEL, U. 13
 KRETH, H. W. 42, 167
 KRISTENSEN, F. 10, 84
 KRÖMER, G. 182
 KRÖNKE, M. 115
 KROMBACH, F. 116
 KUBELKA, C. 87, 117
 KÜHN, R. 118
 KÜSTER, R.-M. 226

- KUMAR, V. 445
 KUNZE, R. 119
 KUPPERS, R. 174
 KURRLE, R. 120
- L'AGE-STEHR, J. 46, 119
 LAMBRIS, J. D. 2, 198, 211
 LAND, W. 224
 LANDER, T. 158
 LANDOLFO, S. 225
 LANG, W. 120
 LANGE, A. 38
 LANZ, R. 103
 LASKUS, C. 89
 LEE, S. 222
 LEIBOLD, W. 59, 168
 LEMKE, H. 45, 65, 121
 LEPTIN, M. 122
 LERSCH, C. 163
 LIEDTKE, B. 156
 LINDER, D. 234
 LINKE, R. P. 123
 LISZKA, K. 78, 107, 124, 132, 204
 LOECK, M. R. 128
 LÖHR, G. W. 29, 73, 153, 243
 LÖSCH, U. 15
 LOHMANN-MATTHES, M.-L. 34, 125, 133, 203
 LOOK, D. 205
 LOOS, M. 66, 67, 168, 175
 LUDWIG, W.-D. 69
 LÜDEMANN, G. 51
 LÜDERITZ, T. 126
 LÜHMANN, B. 219
 LUGER, T. A. 127, 199
 LUST, J. 445
 LUSTER, W. 128
- MADALIŃSKI, A. W. 90
 MÄNNEL, D. 129
 MAI, U. 89
 MAISCH, B. 99, 130, 131
 MAJDIC, O. 78, 107, 132, 204
 MALORNY, U. 138
 MALY, F.-E. 33, 90, 133
 MANGER, B. 114, 134
 MARCHI, L. 166
 MARQUARDT, P. 42
 MARTIN, P. 140
 MARTINOTTI, G. 55
 MASUCCI, M. G. 403
 MATZKU, S. 121, 241
 MAUCK, J. 72, 135
 MAUER, U. 23, 215
- MCKENZIE, I. F. 106
 MEIER, E. 167
 MELCHERS, F. 122
 MELCHERS, I. 136
 MENTLEIN, R. 196
 MENZEL, J. 200
 METZGER, G. 218
 MEUER, S. 137
 MICHELS, E. 138
 MIĆIĆ, M. 82
 MICKSCHE, M. 127
 MIERAU, R. 139
 MILLER, K. 132
 MIZEL, S. 199
 MÖLLER, B. 140
 MÖLLER, G. P. 16
 MOENIG, H. 90
 MOHADJER-DJASBI, H. 141
 MOHR, U. 189
 MOLDENHAUER, G. 31, 142
 MOLL, H. 175
 MOONGKARNDI, P. 143, 160
 MORSCHES, B. 197
 MOSSMANN, H. 4, 43, 144, 216
 MÜLLER, C. E. 97
 MÜLLER, E. 225
 MÜLLER, H. 186
 MÜLLER, J. 36
 MÜLLER, J. M. 145
 MÜLLER, S. 147
 MÜLLER, W. 220
 MUELLER-ECKHARDT, C. 415
 MÜLLER-HERMES, W. J. P. 118, 146
 MÜLLER-PEDDINGHAUS, R. 148
 MÜLLER-RUCHHOLTZ, W. 44, 88, 206, 226, 229
 MUNKER, R. 237
- NÄHER, H. 149, 178
 NAKAUCHI, H. 230
 NAKAYAMA, M. 63, 150
 NEPPERT, J. 415
 NEU, J. 101
 NEU, N. 56
 NICHTILA, P. 46
 NICKLAS, W. 95
 NIEUWENHUIS, P. 1
 NOLTE, R. 219, 231
- OBEXER, G. 15
 OKUMURA, K. 230
 OPPERMAN, M. 7
- OPSTELTEN, D. 1
 OSAWA, H. 151, 152
 OSTERHOLZ, J. 153, 243
- PAJTASZ, E. 96
 PARMIANI, G. 186
 PEEST, D. 184
 PETER, H. H. 100, 154, 155, 190
 PETERS, W. 108
 PETERSMANN, I. 237
 PETZOLDT, K. 59
 PEZZUTTO, A. 31
 PFIZENMAIER, K. 115, 187
 PICHLER, W. J. 154, 155
 PIERARD, D. 89
 PIEROTTI, M. A. 186
 PISON, U. 52
 PORZSOLT, F. 475
 POTTMEYER, C. 26
 PROKSCH, A. 203
 PRZYKLENK, H. 231
 PUSZTAI-MARKOS, Z. S. 156
- RADBRUCH, A. 97, 118, 157
 RADDI, M. 124
 RÄDER, A. 229
 RAFFAEL, A. 158, 215
 RAJEWSKY, K. 97, 118, 209
 RAMADORI, G. 24
 RAMOS, O. F. 403
 RAPP, J. 159
 RAULF, M. 108
 RAUTENSTRAUCH, H. 170
 RAUTERBERG, E. W. 109, 143, 160, 232
 REDDEHASE, M. J. 110, 161
 REDMANN, K. 162
 REGNAT, W. 103
 REICHENSPURNER, H. 163
 REICHHARDT, H. 163
 REIMBOLD, K. 112
 REINHERZ, E. L. 137
 REITER, C. 238
 RENNER, H. 74
 RESCH, K. 179
 RESKE, K. 23, 234
 RESKE-KUNZ, A. B. 40, 164, 165
 RICCI, C. 166
 RIEBER, P. 198
 RIEGER, C. 220
 RIETHMÜLLER, G. 79, 198, 237, 238
 RIETSCHEL, E. T. 18, 126, 208

- RITTNER, C. 167
 ROBIN-WINN, M. 154
 ROBINSON, P. 107, 111
 RODRIGUEZ-ITURBE, B. 5
 RÖDER, A. 99
 ROELCKE, D. 115
 ROELLINGER, S. 168
 RÖLLINGHOFF, M. 187
 ROSSAK, V. 109
 ROSSI, G. 46, 49, 169
 ROTHER, U. 90, 115, 220
 RUBENSTEIN, M. 432
 RÜDE, E. 40, 66, 164, 165, 166, 176, 177
 RÜHL, H. 69, 173
 RUITER, D. J. 21
 RUITER, H. DE 200
 RUMPOLD, H. 15
 RUPPEL, A. 117
 RUSSMANN, E. 112
- SAAL, J. G. 170
 SABLITZKY, F. 157
 SAGAN, Z. 90
 SAIZAWA, M. 171
 SANDRU, G. 172
 SCHADE, U. 126, 208
 SCHALKE, B. C. G. 181
 SCHARFENBERGER, H. 198
 SCHAUENSTEIN, K. 182
 SCHEDEL, I. 184
 SCHEINER, O. 211
 SCHENDEL, D. J. 75, 185
 SCHERBERICH, J. E. 72, 85, 135
 SCHEUER, W. V. 186
 SCHEURICH, P. 60, 115, 187
 SCHIMPL, A. 141, 188, 189
 SCHIRRMACHER, V. 105, 111, 112
 SCHLEPPER-SCHÄFER, J. 183
 SCHLESIER, M. 190
 SCHLOSSMANN, S. F. 137
 SCHLÜSENER, H. J. 191
 SCHLÜTER, M. 234
 SCHMALISCH, R. 147
 SCHMID, H.-U. 211
 SCHMIDT, B. 192
 SCHMIDT, H. 17
 SCHMIDT, R. 76
 SCHMIEGEL, W. H. 193
 SCHMIER, K. 99, 130
 SCHMÖCKEL, C. 237
 SCHNEIDER, B. 224
 SCHÖNWALD, D. 195
- SCHOLZ, S. 116
 SCHOLZ, W. 196
 SCHOPF, R. E. 54, 197
 SCHORLEMMER, H.-U. 28
 SCHUHOSE, C. 205
 SCHULTE-WISSERMANN, H. 54
 SCHULZ, T. F. 2, 198, 211
 SCHUMACHER, K. 22, 81
 SCHUNK, D. 99, 130
 SCHWARTZ, R. 31, 142
 SCHWARZ, S. 8
 SCRIBA, P. C. 205
 SEDLACEK, H. H. 17, 28
 SEEBASS, R. 179
 SEETHALER, H. 46
 SEGAL, S. 485
 SEIDEL, J. 59
 SEILER, F. R. 120, 213
 SEITZ, M. 55
 SENGE, T. 85
 SETHI, K. K. 459
 SIEBER, G. 69, 173
 SIEG, I. 68
 SIEGMUND, J. 36
 SIEGMUND, V. 36
 SIMON, M. M. 20, 174, 175
 SKUPIN-SCHÜSSLER, H. 178
 SLAUSON, D. 10
 SMITH, F. I. 118, 194, 209
 SOLBACH, W. 64, 103
 SONIS, S. 421
 SONNENFELD, G. 445
 SORG, C. 21, 138, 162, 242
 SPAETH, E. 40, 176, 177
 SPECHT, B. U. VON 101, 159
 SPERLING, U. 149, 178
 SPETH, V. 63
 SPUR, B. 108
 STADLER, B. M. 145, 199, 207
 STADLER, J. 224
 STEFFEN, C. 200
 STEIN, H. 45, 243
 STEINIGER, B. 201
 STELDERN, D. VON 23, 66, 164
 STETTER, A. 202
 STEVENSON, G. 24
 STIKKER, R. 1
 STIMPEL, M. 203
 STIRM, S. 234
 STOCKINGER, H. 78, 107, 132, 204
 STÖCKER, K. 205
 STÖCKER, W. 205
 STOFFREGEN, C. 206
 STORCH, E. 95
- STÜNING, H. 108
 SUN, D. 63
 SUTER, L. 21
 SWAAK, A. J. G. 35
 SZAMEL, M. 179
 SZPERALSKI, B. 180, 225
- TADOKORO, K. 207
 TANAMOTO, K. J. 208
 TEICHMANN, H. 173
 TESCH, H. 118, 209
 TESKE, U. 184
 THAISS, F. 218
 THEOBALD, K. 52, 210
 THIEL, H. 71, 210
 THIELE, H.-G. 57
 THIERFELDER, S. 113
 THIESEN, H.-J. 3
 THORNTON, M. 63
 TITTLE, T. VON 9
 TRAUTMANN, M. 213
 TRAVNICZEK, E. 212
 TRENKMANN, J. 238
 TREVES, A. J. 432
 TRIEST, K. 213
 TSCHANK, G. 54
 TOYKA, K. V. 62, 77, 211
- UCHIDA, A. 127
 ÜBERFUHR, P. 163
 UHLENBRÜCK, G. 147
 UHRICH, S. 97, 393
 ULLMANN, U. 51
 ULMER, A. J. 53, 214
 ULMER, W. T. 71, 210
 ULRICHS, K. 206
- VALET, G. 158, 215
 VELEV, B. A. 4, 144, 216
 VENN, D. VAN DE 68
 VENTZKE, K. 205
 VERAGUTH, P. 172
 VETTERMANN, W. 119
 VIETEN, G. 184
 VLADAVSKY, I. 111
 VÖHRINGER, V. 217
 VOGT, A. 5, 218
 VOGT, W. 219, 231
- WAASE, I. 47
 WACKER, H.-H. 45
 WAGNER, H. 60, 64, 115, 187
 WAGNER, M. 73
 WAGNER, W. 74

- WAHN, V. 220
 WALKER, C. 10
 WALLICH, R. 221
 WALTER, P. 159
 WANG, K. C. 222
 WANG, Y. 84
 WANGEL, A. G. 500
 WANK, R. 75, 83, 185, 223
 WEBER, B. 224
 WECK, A. L. DE 10, 84, 145, 199, 207
 WECKER, E. 141, 189
 WEISS, M. 225
 WEISSEL, M. 228
 WEITZMANN, U. 29
 WEKERLE, H. 32, 39, 98, 150, 181, 191
 WELS, A. 163
 WELTE, M. 224
 WELTZIEN, H. U. 4
 WERFEL, T. 6
 WEST, K. 421
 WESTPHAL, E. 226
 WEYAND, C. M. 47, 48, 227
 WICK, G. 1, 8, 56, 182, 228
 WIESMÜLLER, K. 27
 WILIŃSKA, L. 90
 WILSON, R. 421
 WINKLER, M. 147
 WISSLER, J. H. 74, 112
 WOLF, H. 56
 WOLFF-VORBECK, G. 154, 155
 WONIGEIT, K. 201
 WOODBURY, R. G. 107
 WOTTGE, H.-U. 44, 229
 YAMAMOTO, K. 230
 ZABERN, I. VON 219, 231
 ZACHARIOU, Z. 232
 ZALCBERG, J. 106
 ZANKER, B. 24, 233
 ZECHER, R. 234
 ZEITZ, M. 173
 ZENKE, G. 37, 235
 ZIEGLER, I. 236
 ZIEGLER-HEITBROCK, H. W. L. 237, 238
 ZOEBELEIN, R. 13
 ZÖLLER, M. 121, 239, 240, 241
 ZWADLO, G. 242

Subject Index

Acid, generation of chemotactic activity	393	IgG light chains, isoelectric focusing	90
Adherence, C3b-coated erythrocytes	211	Immunogenicity, H-2K ^{bml} antigens	485
Antigen-presenting capacity, B lymphocytes	161	Inflammatory stimuli, oxidative burst	78
B cell system, germinal center	1	Interferon-gamma, mixed lymphocyte reaction	225
B-lymphocyte mitogens, bacterial lipoprotein	27	Isoelectric focusing, IgG light chains	90
B lymphocytes, antigen-presenting capacity	161	Killer-cell lines, mouse thymus	63
Bacterial lipoprotein, mitogens	27	Lectins, stimulation of human B and T lymphocytes	132
Bacterial lipoprotein, synthetic analogues	27	Lymphocyte proliferation and differentiation, polymorphonuclear leukocytes	421
Blood lymphocytes, phorbol-12,13-dibutyrate	403	Lymphocytes, stimulation by various lectins	132
Bone marrow macrophages	46	Lymphokines, plasminogen-activator	107
Bone marrow, rat natural killer cells	121	Lymphoma cells, expression of H-2 and viral antigens	186
C 1, activation	175	Macrophage arginase, herpes simplex virus replication	459
C 1, effect of different enzymes	175	Macrophage cultures, gamma-interferon	459
Cell subsets, germinal center	1	Macrophages, binding of ferritin	46
Chemotactic activity, treatment with acid	393	Macrophages, bone marrow	46
Chemotactic migration, tetracaine	97	Macrophages, membrane markers	432
Complement attack phase, glycoprotein A	115	Macrophages, oxidative burst	78
Delayed-type hypersensitivity, thoracic duct lymphocytes	200	Mastocytoma cells, plasminogen-activator	107
E rosette forming, theophylline sensitivity	500	Membrane markers, monocytes and macrophages	432
Factor H, adherence	211	Memory, thoracic duct lymphocytes	200
Factor I, adherence	211	Mixed lymphocyte reaction, interferon-gamma	225
Gamma-interferon, macrophage cultures	459	Monocyte cytotoxicity test	415
Germinal centers	1	Monocytes, membrane markers	432
Glycophorin A, complement attack phase	115	Mononuclear cell fractions, theophylline sensitivity	500
Glycophorin A, human	147	Natural killer cell activity, IFN- γ production	445
Grafts, T cell reactivity	36	NK cell activity, serial measurements	475
H-2 and viral antigens, lymphoma cells	186	Natural killer cells, not bone marrow dependent	121
H-2K ^{bml} antigens, immunogenicity	485	Natural-killer-system, human	15
Herpes simplex virus, macrophage arginase	459	Natural-killer-system, target structures	15
Human glycophorin A, immunochemistry	147	Oxidative burst, macrophages	78
IFN- γ production, mycoplasma	445	Phorbol-12,13-dibutyrate, cytotoxic activity	403
IFN- γ production, natural killer cell activity	445		
IgG light chains, classification	90		