

Supplementary Table I. Kinase consensus residues. The thirteen kinases listed in Table I were structurally aligned. The amino acid or amino acid category of each consensus residue is listed under “type”. Under each kinase is listed the residue identifier corresponding to the consensus. For conserved amino acid categories the specific amino acid found in each kinase is listed before the identifier. Samples missing a consensus residue have an “x”. Those samples that have a similar residue in place of a conserved amino acid have the shared category listed after the identifier. b, basic; h, hydrophobic; l, aliphatic; p, polar; r, aromatic; s, small; v, very small.

| ID | Type | Kinase | | | | | | | | | | | | |
|----|------|--------|------|------|------|------|--------|---------------|------|-------|-------|-------|-------|-------|
| | | Akt2 | CDK2 | CK1 | CK2 | DAPK | IRK | p38- γ | PhK | Pim-1 | PKA | Rio2 | Sky1P | TAO2 |
| 1 | h | L158 | I10 | I18 | V45 | L19 | L1002 | V33 | L25 | L44 | L49 | M98 | L164 | I34 |
| 2 | G | 159 | 11 | 19 | 46 | 20 | 1003 | x | 26 | 45 | 50 | x | 165 | 35 |
| 3 | G | 161 | 13 | 21 | 48 | 22 | 1005 | x | 28 | x | 52 | x | 167 | 37 |
| 4 | V | 166 | 18 | I26l | 53 | 27 | 1010 | 41 | 33 | 52 | 57 | 106 | 172 | 42 |
| 5 | A | 179 | 31 | 39 | I66l | 40 | 1028 | 54 | 46 | 65 | 70 | V118l | 185 | 55 |
| 6 | K | 181 | 33 | 41 | 68 | 42 | 1030 | 56 | 48 | 67 | 72 | 120 | 187 | 57 |
| 7 | E | 200 | 51 | 55 | 81 | 64 | 1047 | 74 | 73 | 89 | 91 | 154 | 202 | 76 |
| 8 | L | 204 | 55 | Y59h | 85 | 68 | M1051h | 78 | 77 | 93 | 95 | 158 | 206 | 80 |
| 9 | L | 215 | 66 | V71l | 97 | 79 | 1062 | 89 | 89 | 106 | 106 | V169l | 228 | Y91h |
| 10 | h | F227 | L78 | L83 | L111 | L91 | V1074 | L107 | L101 | L118 | M118 | V177 | M244 | L103 |
| 11 | l | V228 | V79 | V84 | I112 | I92 | V1075 | V108 | V102 | I119 | V119 | L178 | V245 | V104 |
| 12 | h | M229 | F80 | I85 | F113 | L93 | M1076 | M109 | F103 | L120 | M120 | M179 | F246 | M105 |
| 13 | E | 230 | 81 | x | 114 | 94 | 1077 | x | x | 121 | 121 | 180 | 247 | 106 |
| 14 | h | A232 | L83 | L88 | V116 | V96 | M1079 | M112 | M106 | P123 | V123 | I182 | L249 | C108 |
| 15 | L | 237 | 87 | 92 | x | 101 | 1084 | 116 | 111 | 129 | M128h | 187 | 253 | A112l |
| 16 | h | F247 | I99 | F103 | L128 | L111 | P1104 | L125 | L121 | L139 | F138 | V192 | I265 | L123 |
| 17 | h | I259 | L111 | M115 | L140 | I123 | I1116 | M137 | L133 | V151 | I150 | I202 | L277 | A135 |
| 18 | h | L263 | L115 | V119 | L144 | V127 | M1120 | L141 | I137 | V155 | F154 | V206 | L281 | L139 |
| 19 | h | L266 | C118 | I122 | C147 | L130 | L1123 | I144 | L140 | C158 | L157 | F209 | M284 | L142 |
| 20 | H | 267 | 119 | 123 | 148 | 131 | x | 145 | 141 | 159 | 158 | x | 285 | 143 |
| 21 | h | V271 | V123 | L127 | I152 | I135 | F1128 | I149 | I145 | V163 | L162 | I214 | I290 | M147 |
| 22 | h | V272 | L124 | V128 | M153 | A136 | V1129 | I150 | V146 | L164 | I163 | V215 | I291 | I148 |

| | | | | | | | | | | | | | | |
|----|---|-------|------|-------|-------|------|--------|------|------|------|-------|-------|-------|------|
| 23 | H | Y273r | 125 | Y129r | 154 | 137 | 1130 | 151 | 147 | 165 | Y164r | 216 | 292 | 149 |
| 24 | R | 274 | 126 | 130 | 155 | x | 1131 | 152 | 148 | 166 | 165 | x | x | 150 |
| 25 | D | 275 | 127 | 131 | 156 | 139 | 1132 | 153 | 149 | 167 | 166 | 218 | 294 | 151 |
| 26 | l | I276 | L128 | I132 | V157 | L140 | L1133 | L154 | L150 | I168 | L167 | L219 | I295 | V152 |
| 27 | K | 277 | 129 | 133 | 158 | 141 | R1136b | 155 | 151 | 169 | 168 | S220p | 296 | 153 |
| 28 | N | 280 | 132 | 136 | 161 | 144 | 1137 | 158 | 154 | 172 | 171 | 223 | 299 | 156 |
| 29 | h | L281 | L133 | F137 | V162 | I145 | C1138 | L159 | I155 | I173 | L172 | V224 | V300 | I157 |
| 30 | h | M282 | L134 | L138 | M163 | M146 | M1139 | A160 | L156 | L174 | L173 | L225 | L301 | L158 |
| 31 | h | L283 | I135 | I139 | I164 | L147 | V1140 | V161 | L157 | I175 | I174 | V226 | M302 | L159 |
| 32 | l | I289 | I141 | I150 | L171 | I157 | V1146 | L167 | I163 | L182 | I180 | I231 | I546 | V165 |
| 33 | l | I291 | L143 | V152 | L173 | I159 | I1148 | I169 | L165 | L184 | V182 | I233 | I548 | L167 |
| 34 | D | 293 | 145 | 154 | 175 | 161 | 1150 | 171 | 167 | 186 | 184 | 235 | 550 | 169 |
| 35 | F | 294 | 146 | 155 | W176r | 162 | 1151 | 172 | 168 | 187 | 185 | 236 | L551h | 170 |
| 36 | G | 295 | 147 | 156 | 177 | 163 | 1152 | 173 | 169 | 188 | 186 | P237s | 552 | 171 |
| 37 | s | C297 | A149 | V158 | A179 | A165 | T1154 | A175 | S171 | G190 | A188 | S239 | A554 | A173 |
| 38 | T | 313 | 165 | 181 | S194s | 180 | x | 188 | 186 | 204 | 201 | x | 567 | 185 |
| 39 | P | 319 | 171 | x | 200 | 186 | 1178 | 194 | 192 | 210 | 207 | x | 573 | 191 |
| 40 | E | 320 | 172 | N188p | 201 | 187 | 1179 | 195 | 193 | 211 | 208 | x | 574 | 192 |
| 41 | D | 332 | 185 | 200 | 214 | 199 | 1191 | 208 | 211 | x | 220 | x | 586 | 207 |
| 42 | W | 334 | 187 | x | 216 | 201 | 1193 | 210 | 213 | 226 | 222 | x | 588 | 209 |
| 43 | G | 337 | 190 | 205 | 219 | 204 | 1196 | 213 | 216 | 229 | 225 | I259l | A591v | 212 |
| 44 | h | M343 | M196 | F211 | M225 | L210 | I1202 | M219 | L222 | M235 | M231 | F262 | L597 | L218 |
| 45 | h | L384 | M266 | Y256 | L304 | L255 | C1245 | M291 | F267 | C270 | L272 | A275 | M686 | C261 |
| 46 | L | 385 | 267 | M257h | 305 | 256 | W1246h | 292 | 268 | 271 | 273 | I272l | 687 | 262 |
| 47 | R | 392 | 274 | x | 312 | 263 | 1253 | 299 | 275 | 278 | 280 | x | 694 | 269 |
| 48 | H | 406 | 283 | x | 321 | 272 | x | 308 | 284 | 287 | 294 | x | 703 | 278 |