

**Table 1: List of oligonucleotide primers used for pneumococcal serotype deduction**

| Primers*         | GenBank accession no. | Primer sequence (5'-3')                           | Gene     | Nucleotide position | Product size (bp) | Reference  |
|------------------|-----------------------|---|----------|---------------------|-------------------|--|
| 1-f              | CR931632              | CTC TAT AGA ATG GAG TAT ATA AAC TAT GGT TA        | wzy      | 9935                | 280               | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 1-r              |                       | CCA AAG AAA ATA CTA ACA TTA TCA CAA TAT TGG C     |          | 10181               |                   |  |
| 2-f              | CR931633              | TAT CCC AGT TCA ATA TTT CTC CAC TAC ACC           | wzy      | 10271               | 290               | Carvalho <i>et al.</i> 2010, J. Clin. Microbiol. 48: 1611-1618 |
| 2-r              |                       | ACA CAA AAT ATA GGC AGA GAG AGA CTA CT            |          | 10531               |                   |  |
| 3-f              | CR931634              | ATG GTG TGA TTT CTC CTA GAT TGG AAA GTA G         | galU     | 9020                | 371               |  |
| 3-r              |                       | CTT CTC CAA TTG CTT ACC AAG TGC AAT AAC G         |          | 9360                |                   |  |
| 4-f <sup>a</sup> | CR931635              | CTG TTA CTT GTT CTG GAC TCT CGA TAA TTG G         | wzy      | 9596                | 430               | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 4-r              |                       | GCC CAC TCC TGT TAA AAT CCT ACC CGC ATT G         |          | 9995                |                   |  |
| 5-f              | CR931637              | ATA CCT ACA CAA CTT CTG ATT ATG CCT TTG TG        | wzy      | 6123                | 362               |  |
| 5-r              |                       | GCT CGA TAA ACA TAA TCA ATA TTT GAA AAA GTA TG    |          | 6450                |                   |  |
| 6A/6B/6C/6D-f    | CR931639              | AAT TTG TAT TTT ATT CAT GCC TAT ATC TGG           | wciP     | 8656                | 250               |  |
| 6A/6B/6C/6D-r    |                       | TTA GCG GAG ATA ATT TAA AAT GAT GAC TA            |          | 8877                |                   |  |
| 6C/6D-f          | EU714777.1            | CAT TTT AGT GAA GTT GGC GGT GGA GTT               | wciNbeta | 1441                | 727               | Carvalho <i>et al.</i> 2009, J. Clin. Microbiol. 47: 557-559   |
| 6C/6D-r          |                       | AGC TTC GAA GCC CAT ACT CTT CAA TTA               |          | 2141                |                   |  |
| 7C/(7B/40)-f     | CR931642              | CTA TCT CAG TCA TCT ATT GTT AAA GTT TAC GAC GGG A | wcwL     | 9438                | 260               | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 7C/(7B/40)-r     |                       | GAA CAT AGA TGT TGA GAC ATC TTT TGT AAT TTC       |          | 9665                |                   |  |
| 7F/7A-f          | CR931643              | TCC AAA CTA TTA CAG TGG GAA TTA CGG               | wzy      | 14683               | 599               | Carvalho <i>et al.</i> 2010, J. Clin. Microbiol. 48: 1611-1618 |
| 7F/7A-r          |                       | ATA GGA ATT GAG ATT GCC AAA GCG AC                |          | 15256               |                   |  |
| 8-f              | CR931644              | GAA GAA ACG AAA CTG TCA GAG CAT TTA CAT           | wzy      | 11193               | 201               |  |
| 8-r              |                       | CTA TAG ATA CTA GTA GAG CTG TTC TAG TCT           |          | 11364               |                   |  |
| 9N/9L-f          | CR931647              | GAA CTG AAT AAG TCA GAT TTA ATC AGC               | wzx      | 11948               | 516               | Dias <i>et al.</i> 2007, J. Med. Microbiol. 56: 1185-1189      |
| 9N/9L-r          |                       | ACC AAG ATC TGA CGG GCT AAT CAA T                 |          | 12439               |                   |  |
| 9V/9A-f          | CR931648              | GGG TTC AAA G TC AGA CAG TG A ATC TTA A           | wzy      | 9966                | 816               | Carvalho <i>et al.</i> 2010, J. Clin. Microbiol. 48: 1611-1618 |
| 9V/9A-r          |                       | CCA TGA ATG A AA TCA ACA TT G TCA GTA GC          |          | 10753               |                   |  |
| 10A-f            | CR931649              | GGT GTA GAT TTA CCA TTA GTG TCG GCA GAC           | wcrG     | 12423               | 628               | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 10A-r            |                       | GAA TTT CTT CTT TAA GAT TCG GAT ATT TCT C         |          | 13020               |                   |  |

|                        |          |   |       |       |     |  |
|------------------------|----------|---|-------|-------|-----|--|
| 10F/(10C/33C)- f       | CR931652 | GGA GTT TAT CGG TAG TGC TCA TTT TAG CA      | wzx   | 12403 | 248 | Carvalho <i>et al.</i> 2010. J. Clin. Microbiol. 48: 1611-1618 |
| 10F/(10C/33C)-r        |          | CTA ACA AAT TCG CAA CAC GAG GCA ACA         |       | 12624 |     |  |
| 11A/11D-f              | CR931653 | GGA CAT GTT CAG GTG ATT TCC CAA TAT AGT G   | wzy   | 11640 | 463 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 11A/11D-r              |          | GAT TAT GAG TGT AAT TTA TTC CAA CTT CTC CC  |       | 12071 |     |  |
| 12F/(12A/44/46)-f      | CR931660 | GCA ACA AAC GGC GTG AAA GTA GTT G           | wzx   | 14407 | 376 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 12F/(12A/44/46)-r      |          | CAA GAT GAA TAT CAC TAC CAA TAA CAA AAC     |       | 14753 |     |  |
| 13-f                   | CR931661 | TAC TAA GGT AAT CTC TGG AAA TCG AAA GG      | wzx   | 14005 | 655 | Carvalho <i>et al.</i> 2010. J. Clin. Microbiol. 48: 1611-1618 |
| 13-r                   |          | CTC ATG CAT TTT ATT AAC CG C TTT TTG TTC    |       | 14630 |     |  |
| 14-f                   | CR931662 | GAA ATG TTA CTT GGC GCA GGT GTC AGA ATT     | wzy   | 7959  | 189 | Dias <i>et al.</i> 2007, J. Med. Microbiol. 56: 1185-1189      |
| 14-r                   |          | GCC AAT ACT TCT TAG TCT CTC AGA TGA AT      |       | 8119  |     |  |
| 15A/15F-f              | CR931663 | ATT AGT ACA GCT GCT GGA ATA TCT CTT C       | wzy   | 7804  | 434 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 15A/15F-r              |          | GAT CTA GTG AAC GTA CTA TTC CAA AC          |       | 8212  |     |  |
| 15B/15C-f              | CR931665 | TTG GAA TTT TTT AAT TAG TGG CTT ACC TA      | wzy   | 7314  | 496 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 15B/15C-r              |          | CAT CCG CTT ATT AAT TGA AGT AAT CTG AAC C   |       | 7779  |     |  |
| 16F-f,                 | CR931668 | GAA TTT TTC AGG CGT GGG TGT TAA AAG         | wzy   | 11679 | 717 | Carvalho <i>et al.</i> 2010. J. Clin. Microbiol. 48: 1611-1618 |
| 16F-r                  |          | CAG CAT ATA GCA CCG CTA AGC AAA TA          |       | 12371 |     |  |
| 17F-f                  | CR931670 | TTC GTG ATG ATA ATT CCA ATG ATC AAA CAA GAG | wci P | 10484 | 693 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 17F-r                  |          | GAT GTA ACA AAT TTG TAG CGA CTA AGG TCT GC  |       | 11145 |     |  |
| 18/(18A/18B/18C/18F)-f | CR931673 | CTT AAT AGC TCT CAT TAT TCT TTT TTT AAG CC  | wzy   | 12687 | 573 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 18/(18A/18B/18C/18F)-r |          | TTA TCT GTA AAC CAT ATC AGC ATC TGA AAC     |       | 13230 |     |  |
| 19A-f                  | CR931675 | GAG AGA TTC ATA ATC TTG CAC TTA GCC A       | wzy   | 9603  | 566 | Pimenta <i>et al.</i> 2009. J. Clin. Microbiol. 17: 2353-2354  |
| 19A-r                  |          | CAT AAT AGC TAC AAA TGA CTC ATC GCC         |       | 10142 |     |  |
| 19F-f                  | CR931678 | GTT AAG ATT GCT GAT CGA TTA ATT GAT ATC C   | wzy   | 11135 | 304 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 19F-r                  |          | GTA ATA TGT CTT TAG GGC GTT TAT GGC GAT AG  |       | 11407 |     |  |
| 20-f                   | CR931679 | GAG CAA GAG TTT TTC ACC TGA CAG CGA GAA G   | wci L | 9567  | 514 | Pai <i>et al.</i> 2006, J. Clin. Microbiol. 44: 124-131        |
| 20-r                   |          | CTA AAT TCC TGT AAT TTA GCT AAA ACT CTT ATC |       | 10048 |     |  |
| 21-f                   | CR931680 | CTA TGG TTA TTT CAA CTC AAT CGT CAC C       | wzx   | 13247 | 192 | Carvalho <i>et al.</i> 2010. J. Clin. Microbiol. 48: 1611-1618 |
| 21-r                   |          | GGC AAA CTC AGA CAT AGT ATA GCA TAG         |       | 13412 |     |  |
| 22F/22A-f              | CR931682 | GAG TAT AGC CAG ATT ATG GCA GTT TTA TTG TC  | wcw V | 11055 | 643 | Pai <i>et al.</i> 2006, J.                                     |

|                      |          |   |       |       |     |   |
|----------------------|----------|---|-------|-------|-----|---|
| 22F/22A-r            |          | CTC CAG CAC TTG CGC TGG AAA CAA CAG ACA AC    |       | 11666 |     | Clin. Microbiol.<br>44: 124-131   |
| 23A-f                | CR931683 | TAT TCT AGC AAG TGA CGA AGA TGC G             | wzy   | 7739  | 722 |   |
| 23A-r                |          | CCA ACA TGC TTA AAA ACG CTG CTT TAC           |       | 8434  |     | Carvalho <i>et al.</i><br>2010. J. Clin.<br>Microbiol. 48:<br>1611-1618 |
| 23B-f                | CR931684 | CCA CAA TTA G CG CTA TAT TCA TTC AAT CG       | wzx   | 13227 | 199 |   |
| 23B-r                |          | GTC CAC GCT GAA TAA AAT GAA GCT CCG           |       | 13399 |     |   |
| 23F-f <sup>a</sup>   | CR931685 | GTA ACA GTT GCT GTA GAG GGA ATT GGC TTT TC    | wzy   | 8768  | 384 | Pai <i>et al.</i> 2006, J.<br>Clin. Microbiol.<br>44: 124-131           |
| 23F-r                |          | CAC AAC ACC TAA CAC TCG ATG GCT ATA TGA TTC   |       | 9119  |     |   |
| 24/(24A, 24B, 24F)-f | CR931688 | GCT CCC TGC TAT TGT AAT CTT TAA AGA G         | wzy   | 11701 | 99  | Carvalho <i>et al.</i><br>2010. J. Clin.<br>Microbiol. 48:<br>1611-1618 |
| 24/(24A, 24B, 24F)-r |          | GTG TCT TTT ATT GAC TTT ATC ATA GGT CGG       |       | 11770 |     |   |
| 31-f                 | CR931695 | GGA AGT TTT CAA GGA TAT GAT AGT GGT GGT GC    | wzy   | 9144  | 701 |   |
| 31-r                 |          | CCG AAT AAT ATA TTC AAT ATA TTC CTA CTC       |       | 9815  |     |   |
| 33F/(33A/37)-f       | CR931702 | GAA GGC AAT CAA TGT GAT TGT GTC GCG           | wzy   | 11129 | 338 | Pai <i>et al.</i> 2006, J.<br>Clin. Microbiol.<br>44: 124-131           |
| 33F/(33A/37)-r       |          | CTT CAA AAT GAA GAT TAT AGT ACC CTT CTA C     |       | 11436 |     |   |
| 34-f                 | CR931703 | GCT TTT GTA AGA GGA GAT TAT TTT CAC CCA AC    | wzy   | 7350  | 408 |   |
| 34-r                 |          | CAA TCC GAC TAA GTC TTC AGT AAA AAA CTT TAC   |       | 7725  |     |   |
| 35A/(35C/42)-f       | CR931704 | ATT ACG ACT CCT TAT GTG ACG CGC ATA           | wzx   | 14394 | 280 | Carvalho <i>et al.</i><br>2010. J. Clin.<br>Microbiol. 48:<br>1611-1618 |
| 35A/(35C/42)-r       |          | CCA ATC CCA AGA TAT ATG CAA CTA GGT T         |       | 14646 |     |   |
| 35B-f                | CR931705 | GAT AAG TCT GTT GTG GAG ACT TAA AAA GAA TG    | wcr H | 10556 | 677 |   |
| 35B-r                |          | CTT TCC AGA TAA TTA CAG GTA TTC CTG AAG CAA G |       | 11199 |     |   |
| 35F/47F-f            | CR931707 | GAA CAT AGT CGC TAT TGT ATT TTA TTT AAA GCA A | wzy   | 7374  | 517 | Pai <i>et al.</i> 2006, J.<br>Clin. Microbiol.<br>44: 124-131           |
| 35F/47F-r            |          | GAC TAG GAG CAT TAT TCC TAG AGC GAG TAA ACC   |       | 7858  |     |   |
| 38/25F/25A-f         | CR931710 | CGT TCT TTT ATC TCA CTG TAT AGT ATC TTT ATG   | wzy   | 13848 | 574 |   |
| 38/25F/25A-r         |          | ATG TTT GAA TTA AAG CTA ACG TAA CAA TCC       |       | 14392 |     |   |
| 39-f                 | CR931711 | TCA TTG TAT TAA CCC TAT GCT TTA TTG GTG       | wzy   | 12289 | 98  | Carvalho <i>et al.</i><br>2010. J. Clin.<br>Microbiol. 48:<br>1611-1618 |
| 39-r                 |          | GAG TAT CTC CAT TGT ATT GAA ATC TAC CAA       |       | 12357 |     |   |
| cps A-f              | CR931662 | GCA GTA CAG CAG TTT GTT GGA CTG ACC           | wzg   | 1473  | 160 | Pai <i>et al.</i> 2006, J.<br>Clin. Microbiol.<br>44: 124-131           |
| cps A-r              |          | GAA TAT TTT CAT TAT CAG TCC CAG TC            |       | 1607  |     |   |

\*All serotypes that are co-detected are listed