**Table S1.** Clinical and microbiological characteristics of *Streptococcus pyogenes* strains isolated during the outbreak

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Strain** | **Isolation**  **Date** | **Age** | **Sexe** | **Anatomical origin /**  **Patient initials a** | **Infection**  **status** | **Death** | **Tracheostomy**  **cannula** | **HCW** | **Molecular**  **markers** | ***emm* genotype** | **PFGE pattern** | **ATBb** | **WGS** | **biofilm /**  **cellular analysis c** |
|  |  |  |
| 20120499 | 16/04/12 | 58 | M | Blood culture | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | IC |
| 20120583 | 04/05/12 | 65 | M | Blood culture | Invasive |  | **+** |  | *speB, spec, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120584 | 03/05/12 | 64 | F | Blood culture | Invasive | **+** |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120585 | 07/05/12 | 56 | M | Blood culture | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120619 | 14/05/12 | 27 | F | Pharynx | Colonization |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | CovS |
| 20120665 | 16/05/12 | 53 | M | Gastrostomy site | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20120686 | 22/05/12 | 35 | M | Pharynx | Non-invasive |  |  |  | *speB, smeZ* | *emm89* | 89-A | S |  |  |
| 20120691 | 18/05/12 | 30 | F | Pharynx | Non-invasive |  |  | **+** | *speA, speB, speC, smeZ* | *emm6* |  | S |  | **+** |
| 20120713 | 26/05/12 | 65 | M | Pharynx | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120727 | 29/05/12 | 68 | M | Sputum | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20120747 | 02/06/12 | 55 | M | Pharynx | Colonization |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | ODC |
| 20120748 | 05/06/12 | 64 | M | Pharynx | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A14 | TcR | **+** |  |
| 20120749 | 02/06/12 | 61 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120772 | 09/06/12 | 38 | F | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20120773 | 07/06/12 | 60 | M | Pharynx | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A21 | TcR | **+** |  |
| 20120774 | 06/06/12 | 64 | F | Gastrostomy site | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20120775 | 05/06/12 | 37 | F | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20120776 | 11/06/12 | 27 | F | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120811 | 14/06/12 | 38 | M | Blood culture | Invasive | **+** |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | FBP |
| 20120824 | 21/06/12 | 42 | F | Pharynx | Colonization |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20120825 | 24/06/12 | 52 | M | Sputum | Colonization |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20120849 | 29/06/12 | 58 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20120852 | 28/06/12 | 56 | M | Tracheostomy cannula | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20121026 | 02/08/12 | 81 | M | Wound | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20121198 | 08/09/12 | 64 | M | Blood culture | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A | S | **+** | **+** |
| 20121368 | 20/10/12 | 55 | M | Sputum | Non-invasive |  |  |  | *speB, smeZ* | *emm89* | 89-A | S | **+** | **+** |
| 20130016 | 14/12/12 | 64 | M | Protected specimen brush | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130148 | 25/01/13 | 63 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130149 | 25/01/13 | 49 | M | Adenopathy discharge | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130150 | 25/01/13 | 73 | M | Blood culture | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130243 | 12/02/13 | 60 | M | Blood culture | Invasive | **+** |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130244 | 11/02/13 | 50 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130245 | 11/02/13 | 64 | M | Gastrostomy site | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130246 | 11/02/13 | 50 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130267 | 13/02/13 | 65 | F | DHN/CE | Invasive |  |  |  | *speB, smeZ* | *emm104* | 104-A | TcR |  |  |
| 20130268 | 15/02/13 | 83 | F | DHN | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130269 | 15/02/13 | 58 | M | Tracheostomy cannula | Colonization |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130270 | 15/02/13 | 52 | F | Pharynx | Non-invasive |  |  |  | *speB, smeZ* | *emm104* | 104-A | TcR |  |  |
| 20130271 | 15/02/13 | 68 | M | Protected specimen brush | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130298 | 20/02/13 | 66 | F | Tracheostomy cannula | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130299 | 19/02/13 | 84 | M | Wound | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130300 | 19/02/13 | 49 | M | Wound | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130301 | 19/02/13 | 54 | M | Wound | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130302 | 19/02/13 | 65 | M | Pharynx | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130303 | 20/02/13 | 60 | M | Tracheostomy cannula/**BP** | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130316 | 25/02/13 | 72 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130317 | 22/02/13 | 59 | M | Tracheostomy cannula | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130318 | 24/02/13 | 69 | M | Protected specimen brush | Invasive | **+** | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130319 | 25/02/13 | 23 | F | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130344 | 04/03/13 | 73 | F | Wound | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130365 | 06/03/13 | 74 | f | Wound | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20130377 | 12/03/13 | 24 | m | Pharynx | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm75* |  | S |  |  |
| 20130378 | 11/03/13 | 60 | m | Tracheostomy cannula/**BP** | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130403 | 18/03/13 | 66 | F | Wound/CE | Colonization |  |  |  | *speB, smeZ* | *emm104* |  | TcR |  |  |
| 20130404 | 20/03/13 | 22 | M | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130405 | 19/03/13 | 21 | F | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130427 | 17/03/13 | 87 | M | Protected specimen brush | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130448 | 03/04/13 | 61 | M | Tracheostomy cannula/**BP** | Non-invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20130479 | 08/04/13 | 78 | M | Blood culture | Invasive |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130516 | 15/04/13 | 53 | M | Protected specimen brush | Invasive | **+** | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130566 | 30/04/13 | 61 | M | Wound | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130587 | 06/05/13 | 69 | M | Wound | Non-invasive |  |  |  | *speB, speC, ssa, smeZ* | *emm4* |  | S |  |  |
| 20130805 | 01/07/13 | 65 | M | Sputum | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130839 | 12/07/13 | 28 | F | Pharynx/**GV** | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130882 | 20/07/13 | 80 | M | Gastrostomy site | Non-invasive |  | **+** |  | *speB, smeZ* | *emm89* | 89-A | S |  |  |
| 20130883 | 22/07/13 | 60 | M | Sputum | Colonization |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20130922 | 30/07/13 | 74 | M | Blood culture | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | S5D |
| 20130948 | 10/08/13 | NA | M | Gastrostomy site | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20131019 | 28/08/13 | 56 | F | Gastrostomy site | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20131020 | 29/08/13 | 75 | M | Wound | Non-invasive |  |  |  | *speB, smeZ* | *emm89* | 89-A | S |  |  |
| 20131102 | 17/09/13 | 65 | M | Wound | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20131103 | 17/09/13 | 73 | M | Gastrostomy site | Non-invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20131134 | 23/09/13 | 28 | F | Pharynx/**GV** | Colonization |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20131144 | 27/09/13 | 26 | F | Pharynx | Non-invasive |  |  | **+** | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20131179 | 06/10/13 | 61 | M | Blood culture/**BP** | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20131188 | 12/10/13 | 63 | M | Sputum | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20131200 | 15/10/13 | 54 | M | Pharynx | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |
| 20131201 | 16/10/13 | 36 | F | Pharynx | Colonization |  |  | **+** | *speB, speC, ssa, smeZ* | *emm87* |  | S |  |  |
| 20131202 | 17/10/13 | 74 | F | Blood culture | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20131268 | 08/11/13 | 54 | M | Gastrostomy site | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20131331 | 25/11/13 | 55 | M | Blood culture | Invasive |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** |  |
| 20131380 | 09/12/13 | 73 | F | Sputum | Colonization |  |  |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S |  |  |
| 20131421 | 23/12/13 | 41 | M | Tracheostomy cannula | Colonization |  | **+** |  | *speB, speC, smeZ* | *emm89* | 89-A4 | S | **+** | **+** |

a The patient’s initials, in bold, was added when more than one strain was collected from the same individual

b S, susceptible to all antibiotic tested; TcR, tetracycline resistant

c + = biofilm formation capacity studied; initials refer to the strains whose interactions with A549 and THP1 have been further studied