**Supplementary Table 3**.Viruence-related genes of uropathogenic *M. morganii* strains.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Category** | **MM 1** | | **MM 4** | | **MM190** | |
| **No. of genes** | **Locus** | **No. of genes** | **Locus** | **No. of genes** | **Locus** |
| Fimbriae and adhesins  (MS, MR, type IV fimbriae, adhesins,  secretion system proteins  etc.) | 70 | DYH52\_RS01195-DYH52\_RS01205,  DYH52\_RS03770,  DYH52\_RS03815-DYH52\_RS03910,  DYH52\_RS03965-DYH52\_RS03980,  DYH52\_RS04460-DYH52\_RS04485,  DYH52\_RS04580,  DYH52\_RS05455,  DYH52\_RS05460,  DYH52\_RS05720-DYH52\_RS05735,  DYH52\_RS11255-DYH52\_RS11310,  DYH52\_RS14560,  DYH52\_RS14585,  DYH52\_RS16240,  DYH52\_RS16495,  DYH52\_RS16500,  DYH52\_RS17235-DYH52\_RS17255,  DYH52\_RS17520-DYH52\_RS17535,  DYH52\_RS17635,  DYH52\_RS17650, DYH52\_RS17895 | 73 | DVJ80\_RS01445,  DVJ80\_RS03400,  DVJ80\_RS03405,  DVJ80\_RS05635,  DVJ80\_RS05640,  DVJ80\_RS05725-DVJ80\_RS05755,  DVJ80\_RS05950,  DVJ80\_RS06225-DVJ80\_RS06240,  DVJ80\_RS06295-DVJ80\_RS06390,  DVJ80\_RS06440,  DVJ80\_RS07640,  DVJ80\_RS08290,  DVJ80\_RS08315,  DVJ80\_RS10230-DVJ80\_RS10250,  DVJ80\_RS10980,  DVJ80\_RS12155-DVJ80\_RS12165,  DVJ80\_RS12540,  DVJ80\_RS14525,  DVJ80\_RS14745-DVJ80\_RS14760,  DVJ80\_RS15005,  DVJ80\_RS15295-DVJ80\_RS15310,  DVJ80\_RS15575-DVJ80\_RS15595,  DVJ80\_RS15840,  DVJ80\_RS15845,  DVJ80\_RS16110-DVJ80\_RS16125,  DVJ80\_RS16740 | 75 | DQ401\_RS01455,  DQ401\_RS03410,  DQ401\_RS04710,  DQ401\_RS05560-DQ401\_RS05580,  DQ401\_RS06310,  DQ401\_RS07830,  DQ401\_RS07835,  DQ401\_RS07920-DQ401\_RS07950,  DQ401\_RS08420-DQ401\_RS08435,  DQ401\_RS08490-DQ401\_RS08585,  DQ401\_RS08635,  DQ401\_RS10685,  DQ401\_RS10710,  DQ401\_RS12620-DQ401\_RS12630,  DQ401\_RS14595,  DQ401\_RS14840-DQ401\_RS14855,  DQ401\_RS15075,  DQ401\_RS15660-DQ401\_RS15675,  DQ401\_RS15775-DQ401\_RS15790,  DQ401\_RS16055-DQ401\_RS16075,  DQ401\_RS16710,  DQ401\_RS17415,  DQ401\_RS17605,  DQ401\_RS17610,  DQ401\_RS17875-DQ401\_RS17890 |
| Motility  (flagellar proteins, T3SS components, transcriptional regulators etc.) | 60 | DYH52\_RS02520,  DYH52\_RS03040,  DYH52\_RS04050,  DYH52\_RS04155-DYH52\_RS04170,  DYH52\_RS04190,  DYH52\_RS11330,  DYH52\_RS12265-DYH52\_RS12335,  DYH52\_RS12350-DYH52\_RS12370,  DYH52\_RS12380-DYH52\_RS12415,  DYH52\_RS12430-DYH52\_RS12495,  DYH52\_RS12645-DYH52\_RS12675,  DYH52\_RS16055,  DYH52\_RS17890,  DYH52\_RS18210 | 63 | DVJ80\_RS00620-DVJ80\_RS00690,  DVJ80\_RS00705-DVJ80\_RS00770,  DVJ80\_RS00785-DVJ80\_RS00850,  DVJ80\_RS00890-DVJ80\_RS00920,  DVJ80\_RS06015,  DVJ80\_RS06030-DVJ80\_RS06050,  DVJ80\_RS06155,  DVJ80\_RS10205,  DVJ80\_RS13805,  DVJ80\_RS13940,  DVJ80\_RS14095,  DVJ80\_RS15055,  DVJ80\_RS16745,  DVJ80\_RS17805 | 65 | DQ401\_RS04175-DQ401\_RS04205,  DQ401\_RS04245-DQ401\_RS04310,  DQ401\_RS04325-DQ401\_RS04390,  DQ401\_RS04405-DQ401\_RS04475,  DQ401\_RS05535,  DQ401\_RS08210,  DQ401\_RS08225-DQ401\_RS08245,  DQ401\_RS08350,  DQ401\_RS09055,  DQ401\_RS14270,  DQ401\_RS14400,  DQ401\_RS14405,  DQ401\_RS15510,  DQ401\_RS15535,  DQ401\_RS17420,  DQ401\_RS18125 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Toxins  (hemolysins, hemagglutinins, insecticidal toxins, secretion system proteins  etc.) | 30 | DYH52\_RS02010-  DYH52\_RS02025,  DYH52\_RS02050,  DYH52\_RS02160,  DYH52\_RS02165,  DYH52\_RS02870,  DYH52\_RS03715,  DYH52\_RS04415,  DYH52\_RS06560,  DYH52\_RS09205,  DYH52\_RS09210,  DYH52\_RS09485,  DYH52\_RS11500,  DYH52\_RS11655,  DYH52\_RS12340,  DYH52\_RS12345,  DYH52\_RS14045,  DYH52\_RS14380,  DYH52\_RS14385,  DYH52\_RS14405,  DYH52\_RS14415,  DYH52\_RS14800,  DYH52\_RS15150,  DYH52\_RS15885,  DYH52\_RS15940,  DYH52\_RS15945,  DYH52\_RS15965,  DYH52\_RS16640 | 32 | DVJ80\_RS00025,  DVJ80\_RS00055,  DVJ80\_RS00695,  DVJ80\_RS01165-DVJ80\_RS01180,  DVJ80\_RS04055,  DVJ80\_RS04060,  DVJ80\_RS04275,  DVJ80\_RS05255,  DVJ80\_RS05800,  DVJ80\_RS07190,  DVJ80\_RS07890,  DVJ80\_RS08075,  DVJ80\_RS08465,  DVJ80\_RS08475,  DVJ80\_RS08495,  DVJ80\_RS08500,  DVJ80\_RS08835,  DVJ80\_RS09890,  DVJ80\_RS10035,  DVJ80\_RS13135,  DVJ80\_RS13145,  DVJ80\_RS13850,  DVJ80\_RS14605,  DVJ80\_RS16360,  DVJ80\_RS17460,  DVJ80\_RS17465,  DVJ80\_RS17470,  DVJ80\_RS17475,  DVJ80\_RS18145 | 31 | DQ401\_RS00790,  DQ401\_RS00795,  DQ401\_RS03630,  DQ401\_RS03635,  DQ401\_RS03640,  DQ401\_RS03915-DQ401\_RS03930,  DQ401\_RS04400,  DQ401\_RS05040,  DQ401\_RS05075,  DQ401\_RS07450,  DQ401\_RS07995,  DQ401\_RS09490,  DQ401\_RS09995,  DQ401\_RS10000,  DQ401\_RS10130-DQ401\_RS10145,  DQ401\_RS10470,  DQ401\_RS10870,  DQ401\_RS10890,  DQ401\_RS10895,  DQ401\_RS11230,  DQ401\_RS13600,  DQ401\_RS13610,  DQ401\_RS14315,  DQ401\_RS14995,  DQ401\_RS17035 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Biofilm formation (AI-2, biofilm formation regulators) | 9 | DYH52\_RS08815,  DYH52\_RS08825-DYH52\_RS08850,  DYH52\_RS09170,  DYH52\_RS12205 | 8 | DVJ80\_RS00565,  DVJ80\_RS01995-DVJ80\_RS02030 | 11 | DQ401\_RS02825-DQ401\_RS02860,  DQ401\_RS03160,  DQ401\_RS04530,  DQ401\_RS10475 |
| Ureases | 7 | DYH52\_RS16945-DYH52\_RS16975 | 7 | DVJ80\_RS14270-DVJ80\_RS14300 | 7 | DQ401\_RS15300-DQ401\_RS15330 |
| Capsule synthesis regulation | 4 | DYH52\_RS12795-DYH52\_RS12805,  DYH52\_RS16225 | 4 | DVJ80\_RS01040-DVJ80\_RS01050,  DVJ80\_RS15020 | 4 | DQ401\_RS04045-DQ401\_RS04055,  DQ401\_RS14580 |
| Cell invasion | 3 | DYH52\_RS04140,  DYH52\_RS04330,  DYH52\_RS04340 | 1 | DVJ80\_RS06060 | 1 | DQ401\_RS08255 |