

**Supplemental Table 1:** Individual patient and lesion characteristics.

| Patient | Sex | Mutation     | AAD | Metastatic or other primary | Hypersecretion   | Lesion   | CT/MRI   | <sup>68</sup> Ga-DOTATATE                | <sup>18</sup> F-FDOPA              | <sup>18</sup> F-FDG | <sup>18</sup> F-FDA |
|---------|-----|--------------|-----|-----------------------------|------------------|--|--|--|------------------------------------|---------------------|---------------------|
| 1       | m   | <i>SDHB</i>  | 21  | yes                         | none             | R JT (c)<br>R LN Level II<br>R LN Level III<br>R LN Level III<br>R LN Level IV<br>Metastases | 1.8 cm<br>0.5 cm*<br>0.6 cm*<br>0.5 cm*<br>0.4 cm*<br>b  | +<br>+°<br>+<br>+<br>+°<br>a, b          | +                                  | +                   | +                   |
| 2       | f   | <i>SDHB</i>  | 22  | yes                         | none             | L CB<br>Metastases   | nv<br>b, lu, me  | +<br>b, lu, me                           | +                                  | +                   | -                   |
| 3       | m   | <i>SDHB</i>  | 52  | yes                         | NMN, NE, MTT, DA | R JT (c)<br>Metastases   | 2.8 cm<br>b, lu  | +<br>b, lu                               | +                                  | +                   | +                   |
| 4       | f   | as           | 65  | no                          | None             | R JT (c)   | 2.4 cm   | +  | +                                  | -                   | +                   |
| 5       | m   | <i>SDHD</i>  | 19  | yes                         | NMN,NE,CgA       | L JT<br>L JT<br>L JT<br>L GV<br>L CB<br>R GV<br>Metastases                                   | nv<br>nv<br>1,6 cm<br>1,0 cm<br>2,4 cm<br>nv<br>a, b, li | +°<br>+°<br>+<br>+<br>+<br>+<br>a, b, li | -<br>-<br>+<br>+<br>+<br>+<br>a, b | -<br>-<br>-         | -                   |
| 6       | f   | <i>HIF2A</i> | 34  | yes                         | none             | L JT<br>Metastases   | nv<br>li   | +  | +                                  | -                   | +                   |
| 7       | m   | <i>SDHD</i>  | 62  | yes                         | NMN, NE, CgA     | L GV (c)<br>Metastases   | 1.2 cm<br>me   | +  | +                                  | +                   | np                  |
| 8       | f   | <i>SDHB</i>  | 19  | yes                         | NMN              | R JT (c)<br>R JT<br>R LN Level II<br>Metastases  | 0.7 cm<br>1.0 cm<br>0.7 cm*<br>b                         | +  | +                                  | +                   | np                  |
| 9       | f   | <i>SDHB</i>  | 37  | no                          | DA, MTT          | R CB (c)   | 2.9 cm   | +  | +                                  | +                   | -                   |
| 10      | m   | <i>SDHB</i>  | 36  | yes                         | NMN              | R CB<br>Metastases   | 1,. cm<br>b  | +  | +                                  | +                   | -                   |
| 11      | f   | <i>SDHD</i>  | 43  | yes                         | none             | R JT (c)<br>L JT<br>R GV<br>R LN level II<br>R CB (c)<br>L CB<br>Metastases                  | Nv<br>Nv<br>Nv<br>Nv<br>5.0 cm<br>4.7 cm<br>me           | +  | +                                  | -                   | -                   |
| 12      | m   | <i>SDHB</i>  | 35  | no                          | none             | R JT<br>L JT<br>L CB (c)   | Nv<br>Nv<br>5.0 cm                                       | +  | +                                  | +                   | -                   |

|    |   |             |    |     |                   |  |  |                   |             |   |   |
|----|---|-------------|----|-----|-------------------|--|--|-------------------|-------------|---|---|
| 13 | m | as          | 55 | no  | MTT               | R GV (c)   | 4.3 cm   | +                 | +           | + | + |
| 14 | m | <i>SDHB</i> | 47 | yes | DA, MTT           | L CB<br>Metastases   | 1.8 cm<br>a, b, me                                 | +                 | +           | + | - |
| 15 | f | <i>SDHB</i> | 47 | yes | DA, MTT, CgA      | L CB<br>Metastases   | Nv<br>b  | +                 | +           | - | - |
| 16 | f | <i>SDHD</i> | 13 | yes | MTT               | L GV<br>L CB<br>Metastases   | nv<br>nv<br>b                                      | +°<br>+°<br>b, me | -<br>-<br>b | - | - |
| 17 | m | as          | 39 | yes | NMN, DA, MTT, CgA | R GV (c)<br>Metastases   | 5.7 cm<br>b  | +                 | +           | + | + |
| 18 | f | <i>SDHD</i> | 28 | yes | DA, MTT, CgA      | R GV (c)<br>R LN level IV<br>R LN level III<br>L LN level IV<br>Metastases | 2.8 cm<br>0.7 cm*<br>1.5 cm<br>3.5 cm<br>b, lu, me | +                 | +           | + | + |
| 19 | m | <i>SDHD</i> | 43 | yes | none              | R GV<br>R CB<br>Metastases   | 3.5 cm<br>Nv<br>-<br>me                            | +                 | +           | + | - |
| 20 | m | <i>SDHD</i> | 23 | yes | none              | R JT<br>R CB<br>L LN level IV<br>Metastases                                | Nv<br>2.2 cm<br>Nv<br>me                           | +                 | +           | - | - |

Abbreviations: a, abdomen; AAD, age at diagnosis; as, apparently sporadic; b, bone; (c), histologically confirmed; CB, carotid body; CgA, chromogranin A; cm, centimeter; DA, dopamine; f, female, GV, glomus vagale; JT, jugulotympanic; L, left side; li, liver; LN, lymph node; lu, lungs; m, male; me, mediastinum; Metastases, metastases outside the head and neck area, MTT, methoxytyramine, NE, norepinephrine; NMN, normetanephrine; np, not performed; nv, not visible; R, right side; +, positive; -, negative; +°, positive only on  $^{68}\text{Ga}$ -DOTATATE; \*, considered as normal LN on CT/MRI.