

**Table S1.** Targeted regions of the 9 genes explored by the AmpliSeq custom panel.

| Chromosome | Chr Start | Chr End   | Gene          |
|------------|-----------|-----------|---------------|
| chr3       | 30648360  | 30648629  | <i>TGFBR2</i> |
| chr3       | 30664638  | 30664810  | <i>TGFBR2</i> |
| chr3       | 30686059  | 30686455  | <i>TGFBR2</i> |
| chr3       | 30691752  | 30691962  | <i>TGFBR2</i> |
| chr3       | 30713039  | 30713979  | <i>TGFBR2</i> |
| chr3       | 30715562  | 30715772  | <i>TGFBR2</i> |
| chr3       | 30729825  | 30730051  | <i>TGFBR2</i> |
| chr3       | 30732903  | 30733134  | <i>TGFBR2</i> |
| chr3       | 178916617 | 178917162 | <i>PIK3CA</i> |
| chr3       | 178921155 | 178921648 | <i>PIK3CA</i> |
| chr3       | 178927831 | 178928156 | <i>PIK3CA</i> |
| chr3       | 178935837 | 178936122 | <i>PIK3CA</i> |
| chr3       | 178951741 | 178952153 | <i>PIK3CA</i> |
| chr7       | 140453027 | 140453242 | <i>BRAF</i>   |
| chr7       | 140481300 | 140481520 | <i>BRAF</i>   |
| chr9       | 21970876  | 21971211  | <i>CDKN2A</i> |
| chr9       | 21974390  | 21974953  | <i>CDKN2A</i> |
| chr12      | 25378369  | 25378743  | <i>KRAS</i>   |
| chr12      | 25380056  | 25380347  | <i>KRAS</i>   |
| chr12      | 25398182  | 25398385  | <i>KRAS</i>   |
| chr17      | 7573877   | 7574094   | <i>TP53</i>   |
| chr17      | 7576782   | 7577196   | <i>TP53</i>   |
| chr17      | 7577397   | 7577615   | <i>TP53</i>   |
| chr17      | 7578086   | 7578560   | <i>TP53</i>   |
| chr17      | 7579287   | 7579591   | <i>TP53</i>   |
| chr17      | 56432224  | 56432453  | <i>RNF43</i>  |
| chr17      | 56434765  | 56436189  | <i>RNF43</i>  |
| chr17      | 56437464  | 56437658  | <i>RNF43</i>  |
| chr17      | 56438133  | 56438366  | <i>RNF43</i>  |
| chr17      | 56439832  | 56440060  | <i>RNF43</i>  |
| chr17      | 56440600  | 56440826  | <i>RNF43</i>  |
| chr17      | 56440877  | 56441034  | <i>RNF43</i>  |
| chr17      | 56448215  | 56448442  | <i>RNF43</i>  |
| chr17      | 56492558  | 56492950  | <i>RNF43</i>  |
| chr18      | 48573324  | 48573675  | <i>SMAD4</i>  |
| chr18      | 48575033  | 48575250  | <i>SMAD4</i>  |
| chr18      | 48575547  | 48575763  | <i>SMAD4</i>  |
| chr18      | 48580971  | 48581186  | <i>SMAD4</i>  |
| chr18      | 48581175  | 48584654  | <i>SMAD4</i>  |
| chr18      | 48584611  | 48584830  | <i>SMAD4</i>  |
| chr18      | 48586136  | 48592087  | <i>SMAD4</i>  |
| chr18      | 48593191  | 48593413  | <i>SMAD4</i>  |
| chr18      | 48593402  | 48593599  | <i>SMAD4</i>  |
| chr18      | 48602799  | 48603205  | <i>SMAD4</i>  |
| chr18      | 48604455  | 48604856  | <i>SMAD4</i>  |
| chr20      | 57480364  | 57480591  | <i>GNAS</i>   |
| chr20      | 57484315  | 57484718  | <i>GNAS</i>   |

**Table S2.**  
**Twenty**  
**pancreatic**  
**cancer**  
**cell lines**  
**SNV types**

| Cell line  | <i>BRAF</i>           | mt effect        | <i>CDKN2A</i> | mt effect        | <i>GNAS</i> | mt effect        | <i>KRAS</i>         | mt effect               | <i>PIK3CA</i>          | mt effect        | <i>RNF43</i>            | mt effect        | <i>SMAD4</i>                  | mt effect               | <i>TGFBR2</i>               | mt effect        | <i>TP53</i>                              | mt effect               |
|------------|-----------------------|------------------|---------------|------------------|-------------|------------------|---------------------|-------------------------|------------------------|------------------|-------------------------|------------------|-------------------------------|-------------------------|-----------------------------|------------------|--|-------------------------|
| AsPC-1     |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> | p.G12D/<br>c.35C>T  | missense* <sup>31</sup> |                        | wt <sup>31</sup> | p.S720X/<br>c.2159G>C   | nonsense**       | p.R100T/<br>c.299G>C          | missense* <sup>31</sup> |                             | wt <sup>31</sup> | p.C135Afs/c.403delA                      | fs** <sup>31</sup>      |
| BxPC3      |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> |                     | wt <sup>31</sup>        |                        | wt <sup>31</sup> |                         | wt <sup>31</sup> |                               | wt <sup>31</sup>        |                             | wt <sup>31</sup> | p.Y220C/c.659T>C                         | missense* <sup>31</sup> |
| Capan-2    |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> | p.G12V/<br>c.35C>A  | missense* <sup>31</sup> |                        | wt <sup>31</sup> | p.R330Hfs/<br>c.989delC | fs**             |                               | wt <sup>31</sup>        |                             | wt <sup>31</sup> |  | wt <sup>31</sup>        |
| CFPAC-1    |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> | p.G12V/<br>c.35C>A  | missense* <sup>31</sup> |                        | wt <sup>31</sup> |                         | wt <sup>31</sup> |                               | wt <sup>31</sup>        |                             | wt <sup>31</sup> | p.C242R/c.724A>G                         | missense* <sup>31</sup> |
| HPAF-II    |                       | wt               |               | wt               |             | wt               |                     | wt                      |                        | wt               | p.E174X/<br>c.520C>A    | nonsense**       |                               | wt                      |                             | wt               | p.P151S/c.451G>A                         | missense**              |
| Mia PACA-2 |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> | p.G12C/<br>c.34C>A  | missense* <sup>31</sup> |                        | wt <sup>31</sup> |                         | wt <sup>31</sup> |                               | wt <sup>31</sup>        |                             | wt <sup>31</sup> | p.R248W/c.742G>A                         | missense* <sup>31</sup> |
| Pa01C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12D/<br>c.35C>T  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> |                               | -                       |                             | wt <sup>28</sup> | p.T155P/c.463T>G                         | missense* <sup>28</sup> |
| Pa02C      |                       | wt <sup>28</sup> |               | -                |             | wt <sup>28</sup> | p.Q61H/<br>c.183T>G | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> |                               | -                       |                             | wt <sup>28</sup> | p.L257P/c.770A>G                         | missense* <sup>28</sup> |
| Pa03C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12D/<br>c.35C>T  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> |                               | wt <sup>28</sup>        |                             | wt <sup>28</sup> | p.L344P/c.1031A>G                        | missense* <sup>28</sup> |
| Pa07C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12D/<br>c.35C>T  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> | p.R445X/<br>c.1333C>T         | nonsense* <sup>28</sup> |                             | wt <sup>28</sup> | p.H179R/c.536T>C                         | missense* <sup>28</sup> |
| Pa08C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12V/<br>c.35C>A  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> | p.W268Xfs/<br>c.804delG       | fs** <sup>28</sup>      |                             | wt <sup>28</sup> | p.L201Cfs/c.602delA                      | fs** <sup>28</sup>      |
| Pa16C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12D/<br>c.35C>T  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> |                               | wt <sup>28</sup>        | p.T180Qfs/<br>c.539_540insA | fs**             | p.I255N/c.764A>T                         | missense* <sup>28</sup> |
| Pa20C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12D/<br>c.35C>T  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> | p.M503Ifs/<br>c.1508_1509insT | fs** <sup>28</sup>      |                             | wt <sup>28</sup> | p.D208V/c.623T>A                         | missense* <sup>28</sup> |
| Pa21C      |                       | wt <sup>28</sup> |               | -                |             | wt <sup>28</sup> | p.G12D/<br>c.35C>T  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> |                               | wt <sup>28</sup>        |                             | wt <sup>28</sup> | p.G266V/c.797C>A                         | missense* <sup>28</sup> |
| Pa28C      |                       | wt <sup>28</sup> |               | wt <sup>28</sup> |             | wt <sup>28</sup> | p.G12V/<br>c.35C>A  | missense* <sup>28</sup> |                        | wt <sup>28</sup> |                         | wt <sup>28</sup> | p.Y95S/<br>c.284A>C           | missense* <sup>28</sup> |                             | wt <sup>28</sup> | p.T125Tfs/c.375delC                      | fs**                    |
| Pa222C     |                       | wt               |               | wt               |             | wt               | p.G12D/<br>c.35C>T  | missense*               |                        | wt               |                         | wt               |                               | wt                      |                             | wt               | p.E339_M340delinsV/<br>c.1016_1018delTCT | fs**                    |
| Panc-1     |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> | p.G12D/<br>c.35C>T  | missense* <sup>31</sup> |                        | wt <sup>31</sup> |                         | wt <sup>31</sup> |                               | wt <sup>31</sup>        |                             | wt <sup>31</sup> | p.R273H/c.818C>T                         | missense* <sup>31</sup> |
| PK8        | p.V600E/<br>c.1799A>T | missense*        |               | wt               |             | wt               |                     | wt                      | p.H1047R/<br>c.3140A>G | missense*        | p.H549N/<br>c.1645G>T   | missense*        |                               | wt                      |                             | wt               |  | wt                      |
|            |                       |                  |               |                  |             |                  |                     |                         |                        |                  | p.G659Vfs/c1976delC     | fs**             |                               |                         |                             |                  |  |                         |
| PK9        |                       | wt               |               | -                |             | wt               |                     | wt                      |                        | wt               |                         | wt               |                               | -                       |                             | wt               | p.R213X/c.637G>A                         | missense**              |
| Su8686     |                       | wt <sup>31</sup> |               | wt <sup>31</sup> |             | wt <sup>31</sup> | p.G12D/<br>c.35C>T  | missense* <sup>31</sup> |                        | wt <sup>31</sup> |                         | wt <sup>31</sup> |                               | wt <sup>31</sup>        |                             | wt <sup>31</sup> | p.G245S/c.733C>T                         | missense* <sup>31</sup> |
|            |                       |                  |               |                  |             |                  |                     |                         |                        |                  |                         |                  |                               |                         |                             |                  | p.G360V/c.1079C>A                        | missense**              |

-, no amplicons; fs, frameshift; mt, mutation; wt, wild type

\*, heterozygous mutation; \*\*, homozygous mutation

**Table S3. The detection of mutations in diluted cancer cell line DNA reference pools by digital NGS**

| Cell line   | Gene          | SNV type           |                   | zygosity     | 0.5% pool  |       | 0.1% pool  |       | 0.01% pool |       |
|---|---------------|--------------------|-------------------|--------------|------------|-------|------------|-------|------------|-------|
|   |               | Amino acid change  | Nucleotide change |              | Predicted% | dNGS# | Predicted% | dNGS# | Predicted% | dNGS# |
|   |               |                    |                   |              |            |       |            |       |            |       |
| PK8   | <i>BRAF</i>   | p.V600E            | c.1799A>T         | heterozygous | 0.25%      | 3     | 0.050%     | 0     | 0.005%     | 0     |
| MiaPACA-2   | <i>KRAS</i>   | p.G12C             | c.34C>A           | homozygous   | 0.50%      | 39    | 0.100%     | 7     | 0.010%     | 1     |
| Pa01C/Pa03C/Pa07C/Pa16C/Pa20C/Pa21C/Pa222C/AsPC-1/PANC-1/Su8686 | <i>KRAS</i>   | p.G12D             | c.35C>T           | mixed        | 2.75%      | 96    | 0.200%     | 75    | 0.020%     | 7     |
| Pa08C/Pa28C/Capan-2/CFPAC-1/                                    | <i>KRAS</i>   | p.G12V             | c.35C>A           | mixed        | 1.00%      | 72    | 0.550%     | 24    | 0.055%     | 3     |
| Pa02C   | <i>KRAS</i>   | p.Q61H             | c.183T>G          | heterozygous | 0.50%      | 18    | 0.100%     | 8     | 0.010%     | 1     |
| PK8   | <i>PIK3CA</i> | p.H1047R           | c.3140A>G         | heterozygous | 0.25%      | 7     | 0.050%     | 0     | 0.005%     | 2     |
| HPAF-II   | <i>RNF43</i>  | p.E174X            | c.520C>A          | homozygous   | 0.50%      | 29    | 0.100%     | 14    | 0.010%     | 0     |
| Capan-2   | <i>RNF43</i>  | p.R330Hfs          | c.989delC         | homozygous   | 0.50%      | 0     | 0.100%     | 0     | 0.010%     | 0     |
| PK8   | <i>RNF43</i>  | p.H549N            | c.1645G>T         | heterozygous | 0.25%      | 8     | 0.050%     | 1     | 0.005%     | 0     |
| PK8   | <i>RNF43</i>  | p.G659Vfs          | c.1976delC        | homozygous   | 0.50%      | 0     | 0.100%     | 0     | 0.010%     | 0     |
| AsPC-1  | <i>RNF43</i>  | p.S720X            | c.2159G>C         | homozygous   | 0.50%      | 13    | 0.100%     | 1     | 0.010%     | 0     |
| AsPC-1  | <i>SMAD4</i>  | p.R100T            | c.299G>C          | homozygous   | 0.50%      | 5     | 0.100%     | 0     | 0.010%     | 0     |
| Pa08C   | <i>SMAD4</i>  | p.W268Xfs          | c.804delG         | homozygous   | 0.50%      | 0     | 0.100%     | 0     | 0.010%     | 0     |
| Pa07C   | <i>SMAD4</i>  | p.R445X            | c.1333C>T         | heterozygous | 0.25%      | 1     | 0.050%     | 0     | 0.005%     | 0     |
| Pa20C   | <i>SMAD4</i>  | p.M503delinsIEfs   | c.1508_1509insT   | homozygous   | 0.50%      | 0     | 0.100%     | 0     | 0.010%     | 0     |
| Pa28C   | <i>SMAD4</i>  | p.Y95S             | c.284A>C          | homozygous   | 0.50%      | 10    | 0.100%     | 1     | 0.010%     | 0     |
| Pa16C   | <i>TGFBR2</i> | p.T180Qfs          | c.539_540insA     | homozygous   | 0.50%      | 0     | 0.100%     | 0     | 0.010%     | 0     |
| Pa28C   | <i>TP53</i>   | p.T125Tfs          | c.375CdelC        | homozygous   | 0.50%      | 1     | 0.100%     | 0     | 0.010%     | 0     |
| AsPC-1  | <i>TP53</i>   | p.C135Afs          | c.403delA         | homozygous   | 0.50%      | 1     | 0.100%     | 1     | 0.010%     | 0     |
| HPAF-II   | <i>TP53</i>   | p.P151SP           | c.451G>A          | homozygous   | 0.50%      | 13    | 0.100%     | 7     | 0.010%     | 1     |
| Pa01C   | <i>TP53</i>   | p.T155P            | c.463T>G          | homozygous   | 0.50%      | 11    | 0.100%     | 2     | 0.010%     | 0     |
| Pa07C   | <i>TP53</i>   | p.H179R            | c.536T>C          | homozygous   | 0.50%      | 9     | 0.100%     | 3     | 0.010%     | 3     |
| Pa08C   | <i>TP53</i>   | p.L201Cfs          | c.602delA         | homozygous   | 0.50%      | 0     | 0.100%     | 1     | 0.010%     | 0     |
| Pa20C   | <i>TP53</i>   | p.D208V            | c.623T>AT         | homozygous   | 0.25%      | 7     | 0.100%     | 0     | 0.010%     | 3     |
| PK9   | <i>TP53</i>   | p.R213X            | c.637G>A          | heterozygous | 0.50%      | 8     | 0.050%     | 3     | 0.005%     | 1     |
| BxPC-3  | <i>TP53</i>   | p.Y220C            | c.659T>C          | homozygous   | 0.50%      | 3     | 0.100%     | 0     | 0.010%     | 0     |
| CFPAC-1   | <i>TP53</i>   | p.C242R            | c.724A>G          | homozygous   | 0.50%      | 20    | 0.100%     | 2     | 0.010%     | 2     |
| Su8686  | <i>TP53</i>   | p.G245S            | c.733C>T          | homozygous   | 0.50%      | 10    | 0.100%     | 4     | 0.010%     | 1     |
| MiaPACA-2   | <i>TP53</i>   | p.R248W            | c.742G>A          | homozygous   | 0.50%      | 17    | 0.100%     | 6     | 0.010%     | 2     |
| Pa16C   | <i>TP53</i>   | p.I255N            | c.764A>T          | homozygous   | 0.50%      | 6     | 0.100%     | 3     | 0.010%     | 3     |
| Pa02C   | <i>TP53</i>   | p.L257P            | c.770A>G          | homozygous   | 1.00%      | 38    | 0.100%     | 10    | 0.010%     | 3     |
| Pa21C   | <i>TP53</i>   | p.G266V            | c.797C>C          | homozygous   | 0.50%      | 9     | 0.200%     | 2     | 0.020%     | 0     |
| PANC-1  | <i>TP53</i>   | p.R273H            | c.818C>T          | homozygous   | 0.50%      | 17    | 0.100%     | 8     | 0.010%     | 3     |
| Pa222C  | <i>TP53</i>   | p.E339_M340delinsV | c.1016_1018delTCT | homozygous   | 0.50%      | 0     | 0.100%     | 0     | 0.010%     | 0     |
| Pa03C   | <i>TP53</i>   | p.L344P            | c.1031A>G         | homozygous   | 0.50%      | 13    | 0.100%     | 3     | 0.010%     | 0     |
| Su8686  | <i>TP53</i>   | p.G360V            | c.1079C>A         | homozygous   | 0.50%      | 11    | 0.100%     | 2     | 0.010%     | 0     |

**Table S4. Serial pancreatic juice collections from patients who developed pancreatic cancer during surveillance**

| Case #                              | Time (months before PDAC diagnosis) | GNAS    |        | KRAS          |        | TP53             |        | SMAD4                   |        | RNF43           |        | PIK3CA            |        |
|-------------------------------------|-------------------------------------|---------|--------|---------------|--------|------------------|--------|-------------------------|--------|-----------------|--------|-------------------|--------|
|                                     |                                     | SNV     | dNGS # | SNV           | dNGS # | SNV              | dNGS # | SNV                     | dNGS # | SNV             | dNGS # | SNV               | dNGS # |
| Case#35_1                           | 13.4                                | p.R201H | 1      | p.G12D/p.G13D | 8,1    | p.R248Q          | 2      |                         |        |                 |        |                   |        |
| Case#35 Primary PDAC from case #35  | 0.1                                 |         | 0      | p.G12V        | 1      | p.R248Q          | 3      | p.P198S                 | 3      |                 |        |                   |        |
|                                     | 0                                   |         | 0      | p.Q61H        | 29%    | p.R248Q          | 24%    |                         |        |                 |        |                   |        |
| Case#48_1                           | 15                                  |         | 0      |               | 0      |                  | 0      |                         |        |                 |        |                   |        |
| Case#48                             | 0                                   |         | 0      |               | 0      | p.C277R          | 3      | p.M543T                 | 3      | p.L109P/p.V480A | 3,3    |                   |        |
| Case#53_1 Cyst fluid from case#53_1 | 19                                  |         | 0      | p.G12D/p.G12R | 1,1    |                  |        | p.Y220C/p.R248W/p.R248Q | 4,1,1  |                 |        | p.H1047L/p.H1047R | 3,6    |
| Case#53_2 Cyst fluid from case#53_2 | 28                                  |         | 0      | p.G13D        | 1,5    | p.R273H/p.R248Q  | 1,1    | p.Y220C/p.R196X         | 1,1    |                 |        |                   |        |
|                                     | 28                                  | p.R201C | 21     | p.G12D/p.G12V | 32,1   |                  |        |                         |        |                 |        |                   |        |
| Case#53_3 Cyst fluid from case#53_3 | 36                                  | p.Q227R | 2      | p.Q61H/p.Q61L | 1,1    | p.R196X          | 2      |                         |        | p.K108R/p.H420R | 3,3    |                   |        |
|                                     | 36                                  | p.R201C | 11     | p.G12D/p.G12V | 3,1    | p.R248Q          | 1      |                         |        |                 |        |                   |        |
| Case#53_4                           | 50                                  |         | 0      | p.G12D/p.G13D | 1,1    |                  |        |                         |        |                 |        |                   |        |
| Case#53_PDAC_FNA                    | 0                                   |         | 0      | p.G12D/p.G12S | 81,4   | p.L344P/ p.R248W | 3,1    | p.H290R                 | 3      |                 |        |                   |        |
| Case#53_PDAC_LCM1 *                 | 0                                   |         | 0      | p.G12D        | 23     | p.Q100Rfs        | 4      | p.Q388X                 | 24     |                 |        |                   |        |
| Case#53_PDAC_LCM2                   | 0                                   |         | 0      | p.G12D        | 24     | p.Q100Rfs        | 8      | p.Q388X/p.H290R         | 21,1   |                 |        |                   |        |
| Case#53_PDAC_LCM3                   | 0                                   |         | 0      | p.G12D        | 24     | p.Q100Rfs        | 4      | p.G386R/p.Q388X         | 24,9   |                 |        |                   |        |
| Case#53_PDAC_LCM4                   | 0                                   |         | 0      | p.G12D        | 24     | p.Q100Rfs        | 3      | p.G386R/p.Q388X/p.H290R | 2,24,1 |                 |        |                   |        |

\*, Laser capture microdissection

**Table S5: Mutations detected in patient neoplastic specimens and the matching pancreatic juice results**

| Patient # | Diagnosis      | Sample origin  | Mutated gene(s) |                                    |             |               |                 |              |              |         |
|-----------|----------------|----------------|-----------------|------------------------------------|-------------|---------------|-----------------|--------------|--------------|---------|
|           |                |                | <i>KRAS</i>     | <i>TP53</i>                        | <i>GNAS</i> | <i>TGFBR2</i> | <i>PIK3CA</i>   | <i>SMAD4</i> | <i>RNF43</i> |         |
| #31       | PDAC +<br>IPMN | Frozen<br>PDAC |                 | p.G12V                             |             |               |                 |              |              |         |
| #31       | PDAC +<br>IPMN | Juice          |                 | p.G12V                             |             |               |                 |              |              |         |
| #33       | PDAC +<br>IPMN | Frozen<br>PDAC |                 | p.G12V/p.G12R                      | p.R273C     |               |                 |              |              |         |
| #33       | PDAC +<br>IPMN | Juice          |                 | p.G13D/p.G12R                      | p.R273C     | p.R201H       |                 |              |              |         |
| #35       | PDAC +<br>IPMN | Frozen<br>PDAC |                 | p.Q61H                             | p.R248Q     |               |                 |              |              |         |
| #35       | PDAC +<br>IPMN | Juice          |                 | p.G12V                             | p.R248Q     |               |                 |              | p.P198S      |         |
| #41       | PDAC           | Frozen<br>PDAC |                 | p.G12R                             |             | p.E465K       | p.K1030E        |              |              |         |
| #41       | PDAC           | Juice          |                 | p.G12D/p.G12R                      |             | p.R201H       |                 |              |              | p.C471R |
| #43       | PDAC           | Frozen<br>PDAC |                 | p.G12V                             | p.R209Kfs   |               |                 |              |              |         |
| #43       | PDAC           | Juice          |                 | p.G12S/p.G12V                      | p.R248W     |               |                 |              |              |         |
| #17       | IPMN           | FFPE           |                 | p.G13D/p.G12V                      |             |               | p.R201H         |              |              |         |
| #17       | IPMN           | Juice          |                 | p.G13D/p.G12C/p.G12R/p.G12V/p.Q61R |             |               | p.R201H         |              |              |         |
| #20       | IPMN           | FFPE           |                 | p.G13D/p.G13S/p.G12S               |             |               |                 |              |              |         |
| #20       | IPMN           | Juice          |                 |                                    | p.R282W     |               | p.R201C         |              |              |         |
| #22       | IPMN           | FFPE           |                 | p.G13S/p.G12R                      |             |               | p.R201C/p.R201H |              |              |         |
| #22       | IPMN           | Juice          |                 | p.G12V                             |             |               |                 |              |              |         |

**Table 1** Characteristics of cases included in this study

| Case | M/F | Age | CAPS# | Risk | Group          | Lesion (mm)      | Pancreatic EUS       | Diagnosis  |
|------|-----|-----|-------|------|----------------|------------------|----------------------|--|
| #01  | F   | 27  | CAPS4 | na   | Control        | No cyst, no mass | Normal               | Diarrhoea, suspected neuroendocrine tumour not identified.                 |
| #02  | F   | 79  | CAPS4 | na   | Control        | No cyst, no mass | Dilated CBD          | Dilated CBD, Whipple Op. benign pathology.                                 |
| #03  | F   | 77  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | Chronic abdominal pain.  |
| #04  | M   | 50  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | Elevated liver enzymes, periportal lymphadenopathy, ?sarcoid.              |
| #05  | F   | 78  | CAPS3 | na   | Control        | No cyst, no mass | Dilated MPD          | Main pancreatic duct dilation, 4 mm pancreatic cyst? Chronic pancreatitis. |
| #06  | M   | 76  | CAPS4 | na   | Control        | No cyst, no mass | Normal               | Abdominal pain, gastritis, GORD.   |
| #07  | F   | 49  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | CBD stone.   |
| #08  | F   | 65  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | Chronic cholecystitis.   |
| #09  | M   | 45  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | Papillary stenosis.  |
| #10  | F   | 68  | CAPS5 | na   | Control        | No cyst, no mass | Chronic pancreatitis | Chronic pancreatitis.  |
| #11  | F   | 48  | CAPS5 | na   | Control        | No cyst, no mass | Chronic pancreatitis | Chronic pancreatitis.  |
| #12  | F   | 43  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | Dilated CBD.   |
| #13  | F   | 44  | CAPS3 | na   | Control        | No cyst, no mass | Normal               | Cholangitis.   |
| #14  | M   | 48  | CAPS3 | s    | IPMN           | 8                | IPMN                 | Pathology: IPMN with low-grade dysplasia, head.                            |
| #15  | M   | 64  | CAPS4 | f    | IPMNs          | 20               | Cysts                | Multiple cystic lesions by EUS, largest 2 cm, head and body.               |
| #16  | F   | 63  | CAPS4 | f    | IPMNs          | 15               | IPMN                 | Pathology: IPMN with low-grade dysplasia, tail w/PanIN2.                   |
| #17  | F   | 60  | CAPS3 | f    | IPMN           | 10               | Dilated MPD          | Pathology: IPMN with low-grade dysplasia, tail w/PanIN2                    |
| #18  | M   | 75  | CAPS5 | f    | IPMNs          | 7                | Tiny cysts           | Pathology: IPMN with low-grade dysplasia, body w/PanIN2.                   |
| #19  | F   | 67  | CAPS3 | s    | IPMN           | 5                | Dilated CBD          | Pathology: IPMN with intermediate grade dysplasia, head w/PanIN2.          |
| #20  | F   | 73  | CAPS3 | s    | IPMN           | 20               | IPMN                 | Pathology: IPMN with intermediate grade dysplasia, body w/PanIN1.          |
| #21  | F   | 67  | CAPS3 | s    | IPMNs          | 60               | IPMN                 | Pathology: IPMN with intermediate grade dysplasia, head.                   |
| #22  | M   | 65  | CAPS4 | f    | IPMNs          | 19               | IPMN                 | Pathology: IPMN with intermediate grade dysplasia, head and neck.          |
| #23  | F   | 64  | CAPS4 | s    | IPMNs          | 22               | IPMNs                | Multiple IPMNs by EUS/MRI largest 2 cm, body.                              |
| #24  | M   | 21  | CAPS4 | s    | IPMNs          | 13               | Innumerable cysts    | McCune-Albright syndrome, many pancreatic cysts (IPMNs) by imaging.        |
| #25  | M   | 67  | CAPS5 | s    | IPMNs          | 25               | Cysts                | Multiple IPMNs by EUS/MRI largest >2.5 cm, head and neck                   |
| #26  | M   | 51  | CAPS4 | f    | IPMNs          | 6                | Tiny cysts           | Subcentimetre pancreatic cysts by EUS, suspected IPMN, tail.               |
| #27  | M   | 62  | CAPS5 | f    | IPMNs          | 5                | Cysts                | Subcentimetre pancreatic cysts (suspected IPMN), head.                     |
| #28  | M   | 70  | CAPS3 | s    | IPMNs          | 44               | Cyst                 | IPMN with suspicious features, uncinata.                                   |
| #29  | F   | 75  | CAPS4 | s    | IPMNs          | 27               | Cyst                 | IPMN by imaging, tail.   |
| #30  | F   | 63  | CAPS5 | s    | IPMNs          | 10               | Cysts                | IPMN by imaging, also a suspected serous cystadenoma by imaging.           |
| #31  | M   | 79  | CAPS4 | s    | PDAC/<br>IPMNs | 45               | IPMN                 | Pathology: Stage IB, body w/IPMN.  |
| #32  | M   | 69  | CAPS5 | s    | PDAC/<br>IPMNs | 60               | IPMN                 | Pathology: Stage IIA, head w/IPMN.   |
| #33  | F   | 74  | CAPS4 | s    | PDAC/<br>IPMNs | 25               | PDAC/IPMN            | Pathology: Stage IIB, head w/IPMN.   |
| #34  | F   | 55  | CAPS2 | s    | PDAC/<br>IPMNs | 20               | PDAC/IPMN            | Pathology: Stage IIB, head w/IPMN.   |
| #35  | M   | 65  | CAPS4 | f    | PDAC/<br>IPMNs | 28               | PDAC/IPMN            | Pathology: Stage IIB, tail w/IPMN.   |
| #36  | M   | 74  | CAPS4 | f    | PDAC/<br>IPMNs | 50               | Cysts                | Pathology: Stage IIB, head w/IPMN.   |
| #37  | M   | 69  | CAPS2 | s    | PDAC/<br>IPMN  | 100              | PDAC/IPMN            | Pathology: Stage III, head w/IPMN.   |
| #38  | M   | 73  | CAPS2 | s    | PDAC/<br>IPMNs | 38               | PDAC/IPMN            | Pathology: Stage IV, uncinata w/IPMN.                                      |
| #39  | M   | 70  | CAPS4 | f    | PDAC           | 7                | PDAC                 | Pathology: Stage IA, tail.   |
| #40  | M   | 53  | CAPS4 | s    | PDAC           | 47               | PDAC                 | Pathology: Stage IB, head.   |
| #41  | F   | 46  | CAPS3 | s    | PDAC           | 30               | PDAC                 | Pathology: Stage IB, head.   |
| #42  | M   | 78  | CAPS3 | s    | PDAC           | 40               | PDAC                 | Pathology: Stage IIA, head.  |
| #43  | F   | 59  | CAPS3 | s    | PDAC           | 30               | PDAC                 | Pathology: Stage IIB, uncinata.  |
| #44  | F   | 77  | CAPS2 | s    | PDAC           | 40               | PDAC                 | Pathology: Stage IIB, head.  |
| #45  | M   | 56  | CAPS2 | s    | PDAC           | 20               | Dilated PD           | Pathology: Stage IIB, head.  |
| #46  | M   | 58  | CAPS4 | s    | PDAC           | 55               | PDAC                 | Pathology: Stage IIB, tail.  |
| #47  | F   | 75  | CAPS4 | s    | PDAC           | NA               | Mass                 | Pathology: Stage III, head to body.  |
| #48  | M   | 59  | CAPS4 | f    | PDAC           | 23               | PDAC                 | Pathology: Stage III, head.  |
| #49  | F   | 69  | CAPS2 | s    | PDAC           | 35               | PDAC                 | Pathology: Stage IV, body and tail.  |
| #50  | F   | 68  | CAPS4 | s    | PDAC           | 47               | Mass                 | Pathology: Stage IV, body and tail.  |

Continued

Table 1 Continued

| Case | M/F | Age | CAPS# | Risk | Group          | Lesion (mm)      | Pancreatic EUS        | Diagnosis   |
|------|-----|-----|-------|------|----------------|------------------|-----------------------|---|
| #51  | F   | 66  | CAPS4 | s    | PDAC           | 44               | Mass                  | Pathology: Stage IV, head.  |
| #52  | F   | 62  | CAPS5 | f    | PDAC           | 18               | PDAC                  | Pathology: Stage IV, head.  |
| #53  | F   | 79  | CAPS5 | f    | PDAC           | 25               | PDAC                  | Pathology: Stage IIB, head.   |
| #54  | M   | 46  | CAPS5 | na   | Control        | No cyst, no mass | Normal                | Hepatosplenomegaly.   |
| #55  | F   | 72  | CAPS5 | na   | Control        | No cyst, no mass | Normal                | Benign pancreatic acinar tissue with acute and chronic inflammation.                        |
| #56  | M   | 34  | CAPS3 | na   | Control        | No cyst, no mass | Normal                | Abdominal pain.   |
| #57  | F   | 52  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Post cholecystectomy, ERCP due to sphincter of Oddi dysfunction.                            |
| #58  | M   | 66  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Abdominal pain.   |
| #59  | F   | 59  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Probable pancreatic serous cystadenoma.   |
| #60  | M   | 59  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Gallbladder stone.  |
| #61  | F   | 73  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Reflux oesophagitis, suspected submucosal nodule not found.                                 |
| #62  | M   | 48  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Abdominal pain, abnormal liver enzymes.   |
| #63  | M   | 40  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Abdominal pain.   |
| #64  | F   | 32  | CAPS4 | na   | Control        | No cyst, no mass | Normal                | Postcholecystectomy, ECRP due to bile leak.   |
| #65  | F   | 58  | CAPS4 | s    | IPMN           | 11               | Cysts                 | IPMNs by EUS, tail.   |
| #66  | M   | 67  | CAPS4 | s    | IPMN           | 20               | Cysts                 | IPMNs by EUS, tail.   |
| #67  | M   | 70  | CAPS4 | s    | IPMN           | 9                | Cysts                 | IPMNs by EUS, head.   |
| #68  | M   | 59  | CAPS4 | s    | IPMN           | 13               | Cyst                  | Side-branch IPMN by EUS (head).   |
| #69  | F   | 65  | CAPS4 | s    | IPMN           | 16               | Cysts                 | IPMNs by EUS, head and body.  |
| #70  | M   | 62  | CAPS4 | s    | IPMN           | 20               | Cysts                 | Cysts by EUS, head.   |
| #71  | F   | 84  | CAPS4 | s    | IPMN           | 16               | Cyst                  | A cyst by EUS, head.  |
| #72  | M   | 66  | CAPS4 | s    | IPMN           | 13               | Cysts                 | IPMNs by EUS, head and body.  |
| #73  | F   | 60  | CAPS4 | s    | IPMN           | 14               | Cysts                 | IPMN vs SCN by imaging.   |
| #74  | F   | 66  | CAPS4 | s    | IPMN           | 15               | Cyst                  | A cyst by EUS, head, suspected IPMN by MRCP.  |
| #75  | M   | 70  | CAPS4 | s    | IPMN           | 22               | Cyst                  | IPMN by EUS, head.  |
| #76  | M   | 41  | CAPS4 | s    | IPMN           | 10               | Cyst                  | IPMN by EUS, tail.  |
| #77  | F   | 55  | CAPS4 | s    | IPMN           | 15               | Cyst                  | IPMN by EUS, head.  |
| #78  | F   | 74  | CAPS4 | s    | IPMN           | 26               | Cysts                 | IPMNs by EUS, body and tail.  |
| #79  | M   | 76  | CAPS4 | s    | IPMN           | 17               | Cyst                  | IPMN by EUS, head.  |
| #80  | F   | 64  | CAPS4 | s    | IPMN           | 21               | Cyst                  | IPMN by EUS, head.  |
| #81  | F   | 44  | CAPS4 | s    | IPMN           | 10               | Cysts                 | IPMNs by EUS, head.   |
| #82  | F   | 77  | CAPS4 | s    | IPMN           | 19               | Cyst                  | IPMN by EUS, head.  |
| #83  | F   | 67  | CAPS4 | s    | IPMN           | 16               | Cysts                 | IPMNs by EUS, head, body and tail.  |
| #84  | M   | 84  | CAPS4 | s    | IPMN           | 17               | Cysts                 | Cysts by EUS, body and tail.  |
| #85  | M   | 49  | CAPS4 | s    | IPMN           | 18               | Cyst                  | IPMN by EUS, tail.  |
| #86  | F   | 74  | CAPS4 | s    | IPMN           | 24               | Cysts                 | IPMNs by EUS, head, body and tail.  |
| #87  | F   | 77  | CAPS4 | s    | IPMN           | 21               | Cysts                 | IPMNs by EUS, head, body and tail.  |
| #88  | F   | 83  | CAPS4 | s    | IPMN           | 19               | Cysts                 | IPMNs by EUS, head, body and tail.  |
| #89  | F   | 83  | CAPS4 | s    | IPMN           | 19               | Cysts                 | IPMNs by EUS, head, body and tail, chronic pancreatitis.                                    |
| #90  | M   | 70  | CAPS4 | s    | IPMN           | 17               | Cysts                 | IPMNs by EUS, head and body.  |
| #91  | F   | 62  | CAPS4 | s    | IPMN           | 10               | Cysts                 | IPMNs by EUS, head.   |
| #92  | F   | 70  | CAPS4 | s    | IPMN           | 23               | Cysts                 | IPMNs by EUS, body.   |
| #93  | M   | 62  | CAPS4 | s    | IPMN           | 21               | Cysts                 | IPMNs by EUS, head, body and tail.  |
| #94  | F   | 66  | CAPS4 | s    | IPMN           | 17               | Cysts                 | IPMNs by EUS, head and tail.  |
| #95  | M   | 64  | CAPS4 | s    | IPMN           | 18               | Cyst                  | A cyst by EUS, tail, IPMN by imaging.   |
| #96  | M   | 76  | CAPS4 | s    | IPMN           | 9                | Cysts                 | IPMNs by EUS, head and tail.  |
| #97  | F   | 83  | CAPS4 | s    | IPMN           | 15               | Cyst                  | IPMN by EUS, body.  |
| #98  | F   | 68  | CAPS4 | s    | IPMN           | 14               | Cyst                  | IPMN by EUS, head.  |
| #99  | F   | 60  | CAPS4 | s    | IPMN           | 12               | Cysts                 | IPMNs by EUS, head, body and tail.  |
| #100 | M   | 78  | CAPS4 | f    | LG-IPMN        | 6                | IPMNs                 | Pathology: IPMN with low-grade dysplasia, head and tail w/ PanIN2.                          |
| #101 | M   | 72  | CAPS4 | f    | LG-IPMN        | 9                | IPMNs                 | Pathology: IPMN with low-grade dysplasia, head w/ PanIN2.                                   |
| #102 | M   | 72  | CAPS4 | s    | IM-IPMN        | 30               | IPMNs                 | Pathology: IPMN with low-to-intermediate grade dysplasia, tail w/ PanIN2.                   |
| #103 | F   | 75  | CAPS4 | f    | IM-IPMN        | 15               | IPMNs                 | Path: IPMN intermediate grade dysplasia, tail w/PanIN2, PanNet (2mm).                       |
| #104 | M   | 71  | CAPS4 | f    | IPMN           | 8                | Cysts                 | Less than 1 cm cysts (1 year later: surgery IPMN high-grade dysplasia (35 mm), body, tail). |
| #105 | M   | 68  | CAPS5 | s    | PDAC/<br>IPMNs | 60               | Cyst (with<br>nodule) | Pathology: stage IIA, head with PanIN3.   |

Continued

Table 1 Continued

| Case | M/F | Age | CAPS# | Risk | Group          | Lesion (mm) | Pancreatic EUS | Diagnosis   |
|------|-----|-----|-------|------|----------------|-------------|----------------|---|
| #106 | M   | 44  | CAPS4 | s    | PDAC/<br>IPMNs | 49          | Malignant IPMN | Pathology: stage III, head with PanIN1.                                     |
| #107 | M   | 59  | CAPS5 | s    | PDAC/<br>IPMN  | 7           | MD-IPMN        | Pathology: mucinous (colloid) carcinoma arising in an IPMN, Stage IA, head. |
| #108 | M   | 63  | CAPS5 | s    | PDAC           | 55          | Mass           | Pathology: stage III, head.   |
| #109 | M   | 71  | CAPS5 | s    | PDAC           | 25          | Mass           | Pathology: stage IV, tail.  |
| #110 | M   | 70  | CAPS5 | f    | PDAC           | 44          | Mass           | Pathology: stage IV, body.  |
| #111 | M   | 62  | CAPS5 | s    | PDAC           | 34          | Mass           | Pathology: stage IV, head.  |
| #112 | F   | 71  | CAPS5 | s    | PDAC           | 23          | Mass           | Pathology: stage IB, body with PanIN2.                                      |
| #113 | F   | 77  | CAPS4 | s    | PDAC           | 48          | PDAC           | Pathology: stage IV, body.  |
| #114 | M   | 57  | CAPS4 | s    | PDAC           | 36          | Mass           | Pathology: stage IV, head.  |
| #115 | M   | 68  | CAPS4 | s    | PDAC           | 30          | PDAC           | Pathology: stage IV, body.  |

CAPS, Cancer of the Pancreas Screening; ERCP, endoscopic retrograde cholangiopancreatography; EUS, endoscopic ultrasonography; f, familial; IPMN, intraductal papillary mucinous neoplasm; MRCP, MR cholangiopancreatography; PanIN, pancreatic intraepithelial neoplasia; PDAC, pancreatic ductal adenocarcinoma; s, sporadic.