SNPtrace™ - Additional information

The Fluidigm® SNPtrace™ Panel facilitates quality control (QC) and tracking of DNA samples. The panel contains core SNPs for assessing sample quality and 80 autosomal SNPs. The full SNP list can be downloaded at: https://www.fluidigm.com/binaries/content/documents/fluidigm/search/hippo%3Aresultset/snp-trace-data-sheet/fluidigm%3Afile

The SNPtrace™ panel contains:

- **16 core SNPs**
  - 6 gender SNPs used for determining sample gender (3 on the X chromosome and 3 on the Y chromosome.
- **10 Critical Quality Evaluating SNPs**
  - These are used to assess sample integrity and designed within samples prone to DNA degradation.
- **80 autosomal SNPs**
  - These vary between individuals and act as a molecular fingerprint.
  - No two individuals will have the same genotypic profile across these 80 SNPs.
  - These can be used to assign a unique molecular barcode to each sample.

Other information:

- The user is able to set criteria for which samples are passed/failed based on the 16 core SNPs.
- Very few SNP no-calls are tolerated in the 6 gender SNPs or 10 Critical Quality Evaluating SNPs.
- If samples have no-calls in the gender SNPs it suggests sample mix up of different genders and the sample may fail QC.
- If samples have no-calls in the Critical Quality SNPs it suggests sample degradation and/or mix up and will result in failed QC.
- The criteria for sample pass/fail can be modified and set by the customer according to their stringency requirements.
Project Planning Recommendations:

- It is recommended that the customer includes samples of poor quality (degraded), deliberately contaminated samples, and deliberately mixed up sample ID to test if the SNPtrace™ panel is suitable for the desired project. The example data set that Fluidigm has includes samples contaminated at 10%, 20%, 25% etc. The official spec is that sample contamination >15% can be detected (Female->Male).

  This trial run should include the following samples (in mixture of male and female in each category): good quality vs bad quality samples, deliberately contaminated samples, some deliberately mixed up samples and a couple of Coriell DNA with known genotype (otherwise this exercise might not be very useful).

- It is also recommended to run at least one positive control on every chip with known genotype to control for any chip-to-chip variation and check the performance of the assays. It is recommended to use at least one of the Coriell control DNA samples for any biobanks related applications.

- The standard sample quality and concentration recommendations are:
  - 260:280 ratio between 1.5 and 1.8
  - Intact DNA (Checked the integrity of the samples on system such as the Caliper GX or Agilnet TapeStation)
  - The concentration should be 60ng/ul* or higher

Please contact us if you intent to use samples that are less concentrated or at low quality (e.g. FFPE samples) and we can discuss possible options for your project.