Automated DNA Extraction

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Automated Extraction Survey

18 respondents

- Current extraction
  - Only 4 labs happy with current extraction
  - 1 automated (Reasonably happy)
  - 1 PCR direct from blood
  - 2 difficult to justify cost

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■ Expectations

    ■ Speed (bench time)   [41]

    ■ DNA quality (consistency between labs)   [39]

    ■ Reduce failure rate   [38]

    ■ Sample tracking   [37]

    ■ Cost of extraction   [31]

<u>Reduction in bench time</u>

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- Expected throughput
  - 3 labs <10
  - 15 labs 10-100 (~20 where detailed)
- Batch size
  - 14 labs 12 per batch
  - 4 labs 48 per batch (+2 depending on requirements)
- Storage
  - All labs preferred tubes

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- Sample types
    - Majority of samples EDTA blood
    - 1 lab significant proportion of Lihep
    - 2 labs significant proportion of mouth brush/wash
    - 1 lab significant proportion of tissue
    - 2 labs significant proportion amniotic fluid
    - 1 labs significant proportion of cell culture

Major factor for appropriate automation

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- Required Yield
  - <5ug DNA sufficient for 35% samples
  - 5-100ug DNA sufficient for 38% samples
  - 27% samples require >100ug DNA
  - Labs polarised

No consensus

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- Would you consider using a low volume extraction protocol (200-1000ul blood, yield ≤30ug DNA)?

  78%

- Assuming the whole process was totally automated, would it be acceptable to mix multiple extractions from a single sample in situations where a large quantity of DNA is required?

  61%

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- Key factors
  - Reduce bench time
  - Throughputs not particularly high
  - Local variation in sample type
  - No consensus on yield requirements
  - Discussion required regarding acceptable practice