

MICROBIOLOGY

How we do it

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Samples

- Strains
 - "Expert" laboratories
 - Other laboratories
 - Other QC providers
- Each strain is controlled on purity and identified after reception
- Can be evaluated by experts before production

Lyophilized versus clinical samples





Production of samples

- Culture
- Lyophilization or production of clinical samples (stool, urine, swabs, skin scrapings)
- Internal control of samples
- External control of samples (experts)

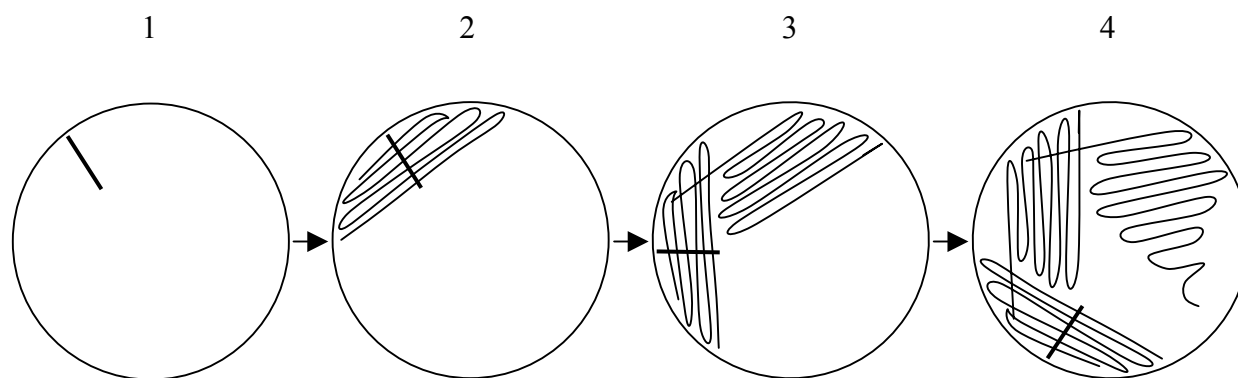


Internal control of lyophilized samples

- 6 samples from different stages of the distribution:
 - 2 at the beginning
 - 2 in the middle
 - 2 at the end
- Growth control
- Purity
- Identification

Growth control

- After each lyophilization
- If > 3 mths between production – send out: repeated
- Semi-quantitative (calibrated loop 10 μ l)





Growth control: interpretation

- Interpretation (based on own experiences):
 - Rare: 1-9 col/part1 = 100-900 col/bottle
 - Few: 10-90 col/part1 = 1000-9000 col/bottle
 - +: = 100 col/part1 = = 10 000 col/bottle
 - ++: growth part 2 = = 50 000 col/bottle
 - +++: growth part 3 = = 100 000 col/bottle
- Validation:
 - At least = 10 000 is necessary



Purity

- No contamination is allowed

Identification

- Must be in concordance with presumed identification



Internal control of clinical samples

- All material used in production of the samples is controlled on sterility
- Samples are controlled on:
 - Growth
 - Purity
 - Identification
- Samples are chosen at random from beginning, middle and end of the production



Performance of control

- Control is performed:
 - Immediately after production
 - Weekly during storage of the samples (growth, (purity)); can be daily in case of “difficult” organisms
 - Continued at sending and 1-2 weeks after sending (repeat samples)



Growth control

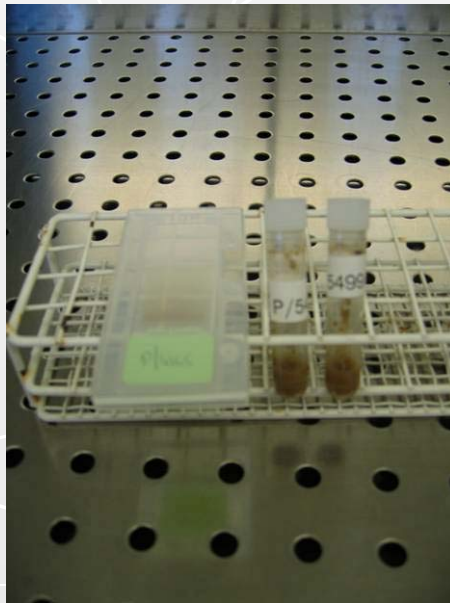
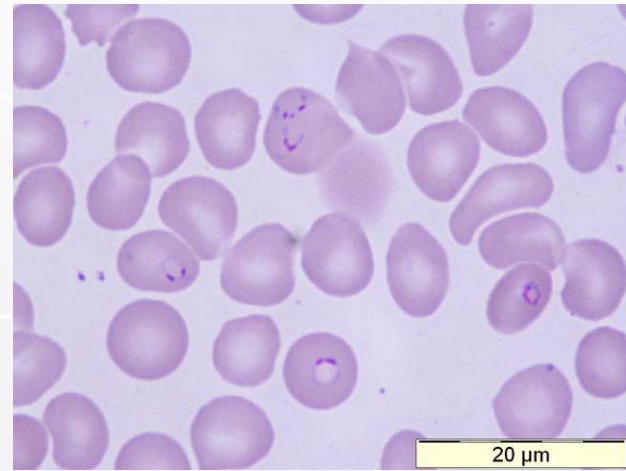
- Pathogens
- Commensals
- Relation between both (depends on sample, may differ from one survey to the next)
- Evaluated during conservation



External control

- Samples are evaluated by a committee of experts (n = 10 (min. needed 5))
- Samples are treated as routine samples; evaluation of growth, purity, identification, antibiogram
- Conclusion about utility and usefulness of samples
- At least 80% of the results must be in concordance

Parasitology





Internal control: stool samples

- Preparation: stool + formol (volumes depend on available volume of stool, nature and concentration of parasites)
- Homogenization by mixing (20')
- Distribution in samples 1 ml
- Control of 10 random samples: visual microscopic evaluation: each sample must contain sufficient number of parasites



Internal control: blood smear

- Malaria: microscopic examination of 10 (stained) samples is sufficient
- Other (e.g. microfilaria): every smear is examined on presence of parasites (unstained); “negative” smears are discarded



External control

- Samples are evaluated by a committee of experts (n = 10 (min. needed 3))
- Samples are microscopically examined
- Conclusion about utility and usefulness of samples
- At least 66% of the results must be in concordance



Feedback

- Laboratories that failed to retrieve the parasites can send “their” sample back
- We evaluate the presence of the given parasite and provide them with a repeat sample
- In some cases we take a photograph of the returned sample



Literature

- Manual of Clinical Microbiology, Murray, 8th ed, 2003, ASM
- Diagnostic Medical Parasitology, Garcia, 4th ed, 2001, ASM