

How can I use OMNIGene®•SPUTUM?

Use Case 5: Boost laboratory efficiency by batching/holding samples

Diagnostic laboratories are constantly seeking ways to improve efficiency and cut costs. Specifically, they need strategies that can maximize sample throughput and build capacity without adding staff or having to divert or find extra resources. One way to capture efficiencies is to have the flexibility to hold samples overnight or over a weekend (regularly or as needs arise due to large surveillance studies, for example), as this enables facilities to capitalize on batching and ensure cost-efficient staffing. In addition, smaller efficiencies can be gained by being able to batch and test large lots of samples all at once instead of wasting certain resources on frequent small runs.

Currently, raw sputum samples cannot be left at room temperature because microbial contaminants will rapidly overgrow the *Mycobacterium tuberculosis* in the sample. Conventional NaOH/NALC decontamination is labour-intensive and inflexible due to the strict timing of the protocol. Samples must be exposed to NaOH/NALC solution for exactly 15 minutes, and the technician is restricted to 20 minutes total to complete all the processing steps required for each sample tube: uncap tubes, add NaOH/NALC to each tube, recap tubes, wait 15 minutes, uncap tubes again, add phosphate-buffered saline to each tube, then centrifuge and re-suspend sediments. This strict time constraint means that a technician can only process 8 to 10 samples at one time using the NaOH/NALC method.

OMNIGene•SPUTUM changes all this by making it possible for laboratories to be flexible and efficient with sputum sample management and testing. Once OMNIGene•SPUTUM is added to raw sputum and mixed, the sample can be transported or held at ambient/room temperature (4°C to 40°C) for up to 8 days. Since **no refrigeration or processing is required during the 8 days**, samples can be batched as part of the laboratory's standard workflow, or they can be held overnight or even over a weekend in accordance with needs. Throughput can be flexed depending on the facility's workload at any given time, and to maximize or schedule staffing most efficiently.

Example scenario 1

A laboratory technician arrives in the morning and a group of raw sputum samples has been delivered. The technician treats each sample with OMNIGene•SPUTUM. Once the reagent and sample are mixed, staff can allow up to 8 days hold time at room temperature to flexibly manage the testing such that throughput is maximized. For example, samples can be accumulated with other sets that arrive, and then all can be batch-processed (i.e., centrifuge buckets balanced and throughput maximized) and re-suspended in phosphate-buffered saline. At that stage, they are ready to be tested; cultures can be inoculated and other testing can be done in the most efficient manner (i.e., in regards to time and staffing).

Example scenario 2

A laboratory technician arrives in the morning and receives a group of samples that have been transported from the collection site to the laboratory in OMNIGene•SPUTUM (i.e., samples already liquefied and decontaminated). These can be held at room temperature until 8 days after the addition of OMNIGene•SPUTUM. As in the example above, the samples can be accumulated with other sets that arrive and then all can be batch-processed (i.e., centrifuge buckets balanced and throughput maximized) and re-suspended in phosphate-buffered saline. At this stage, they are ready to be tested; cultures can be inoculated and other testing can be done in the most efficient manner (i.e., in regards to time and staffing).

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Example scenario 3

Most laboratories experience cyclical sample submissions; that is, more samples might be delivered on Tuesdays and Wednesdays than on Fridays, or more samples might arrive in mornings than in afternoons. Regardless of when raw sputum samples arrive, OMNIgene•SPUTUM can be added to allow up to 8 days hold time at room temperature prior to processing/testing. Optimizing and standardizing all samples with OMNIgene•SPUTUM gives a laboratory manager the flexibility needed to control scheduling. They can establish a more even distribution of processing/testing over workdays, throughout each week and across weeks/weekends, and can fine-tune staffing capacity to match all scheduled or anticipated workloads. This translates to significantly more efficient use of staff and resources.

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