UPTOSPEED Express Updates
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Molecular Detection of Helicobacter Pylori:
Techniques, Procedures & Relevance of Bacterial RNA

Helicobacter pylori (H. pylori) is a bacterial infection that affects a large portion of the population in India. An estimated 50-60% of the population in India is infected with H. Pylori. The infection is usually passed from person to person through direct contact with saliva, vomit, or stool. It can also spread through food and water. H.pylori can cause gastritis, peptic ulcers and stomach cancer. Antibiotic resistance to H. pylori is a major problem in India. Some antibiotics used to treat H. pylori include metronidazone, furazolidone, clarithromycin, amoxicillin and tetracycline.

Molecular Techniques for Detecting Helicobacter pylori|

Various molecular techniques are available for detecting Helicobacter pylori infection, with next-generation sequencing (NGS) and microarrays being the most commonly used. Both techniques require a stomach biopsy as the first step, followed by bacterial RNA extraction and purification.

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The steps involved are as follows:

1. Sample collection via endoscopy and freezing at -80°C until processing

2. Thawing and tissue lysis:*

- In a 2mL tube, add the lysis reagents according to the chosen method, shake for 20 seconds, and centrifuge for 3 minutes at maximum speed in a micro centrifuge.
- Collect the supernatant and store at -80°C.

3. Thawing and RNA purification:

- This involves several sequential steps using various reagents (ethanol, DNase, water, etc.) to isolate the RNA of interest. Between each step, the 2mL tube is shaken and centrifuged for 30 seconds to 2 minutes at 8,000xG.
- The resulting RNA is transferred to a new 2mL tube for subsequent analyses (NGS or microarray).

Importance of proper RNA purification

Proper purification of bacterial RNA is essential for obtaining reliable and accurate results in diagnosing Helicobacter pylori infection. Centrifugation plays a crucial role in this process due to its speed and convenience in handling small samples.



To ensure high yields in the total RNA purification of Helicobacter pylori from gastric biopsies, the Superspin R V/FM centrifuge stands out as the best option. With a capacity of up to 15,000 RPM and 21,885xg, it guarantees efficient separation, while its compact design and compatibility with volumes of up to 24 x 2mL ensure precise and reliable sample handling.

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Recommended Centrifuge:



Product – Rota
Superspin R V/FM PART NO: **ROTOR L24x 2mL** PART NO:

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Since the 1980's Scientiquipp (formerly known as Plasto Crafts) has been synonymous with customer-oriented processes and innovative products, such as laboratory devices. Today, we serve as experts and advisors, using our unique knowledge and experience to support laboratories and research institutions around India. The foundation of the company's expertise is its focus on its customers. Scientiquipp's exchange of ideas with its customers results in comprehensive solutions that in turn become industry standards. Scientiquipp will continue this path in the future, to the standard set by the company's founders: that of *enabling the future of medicine.*

European Brushless Technology | CE ISO 9001:2015 Certified | IR | IAF MGM RvA C

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