sercon

ABCA2

AUTOMATED BREATH $^{13}CO_2$ ANALYSER

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Sercon are dedicated to the design, manufacture and support of **Isotope Ratio Mass Spectrometers** and their associated **sample preparation systems.**

The ABCA2 is the high performance, high sample throughput Isotope Ratio Mass Spectrometer for breath analysis. The outstanding performance and versatility, combined with user friendly software, make the ABCA2 the only choice for ^{13}C breath tests. Superior performance, high sample throughput and unlimited sample capacity ensure that this is the ultimate instrument for *Helicobacter pylori* detection.

THE KEY FEATURES OF THE ABCA2 INCLUDE:

- Providing 0.1‰ precision for breath samples from 0.1% to 10% CO_2
- The accepted gold standard for breath testing since 1996.
- CE/IVD Certified in conjunction with ISO13485 for medical devices.
- First dedicated *H Pylori* instrument to be FDA approved.
- Only instrument with built in reference checks.
- The most precise breath test instrument available.
- High automated throughput of 240 samples, with reloading for up to 336 samples.
- Compatible with LIMS systems.
- Multiple breath applications available (liver function, bacteria overgrowth, pancreatic function, lactose intolerance, gastric emptying, fat malabsorption and lipid metabolism).
- Run times of either 90 seconds or 3 mins per sample - dependent upon application.
- Optional bar code reader for error free sample loading, secure patient identification and GLP compliance.
- Sercon XYZ sampler with five 48 place racks for 12ml vials meaning a total of 240 vials can be loaded at a time. With the bar code reader installed, sample positions can be reloaded providing a high number of consecutive analyses.
- A breath container may be analysed up to 5 times i.e. a stored sample may be re-analysed if further measurement is requested.
- Internal Reference Gas Injection for ease of calibration and laboratory quality control tests e.g. instrument linearity checks. Mimics a real sample by travelling through the complete sample flow path.
- High quality regulators for gas control, digital flow sensor, normally closed valves configured to save gas and preserve consumables in the event of a power failure.
- Total software control of the instrument system and data processing, allows storage of sample analysis protocols and mass spectrometer tuning conditions to comply with good laboratory practice.
- Standby mode to preserve consumable life during periods of low use.
- Inter-file import/export facility from instrument PC to laboratory server or internet (allows rapid updating of software or transfer to common spreadsheet packages).
- 12ml sample size using either Vacutainers or Exetainers provided with test kits.

THE ABCA2 IS THE ULTIMATE INSTRUMENT FOR *HELICOBATER PYLORI* DETECTION

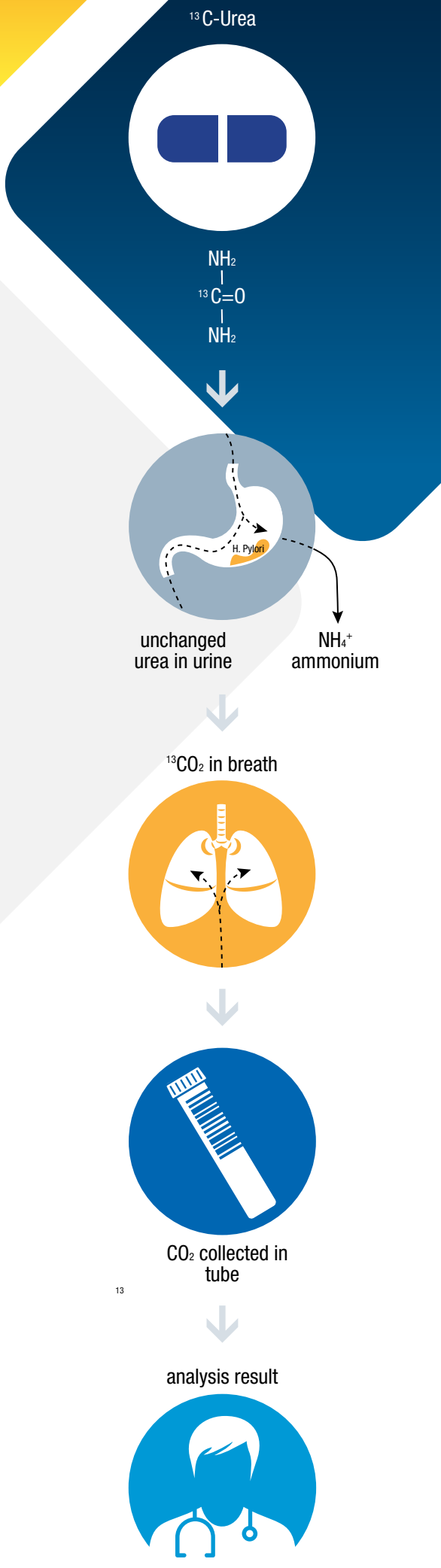
^{13}C is a non-radioactive, naturally occurring stable isotope which is used to label a specific metabolic substrate. The patient ingests and metabolises the substance, such as urea, in such a way that the ^{13}C is released as $^{13}CO_2$ and expelled in the patient's breath. The level of $^{13}CO_2$ measured in the breath is used to determine a particular metabolic disorder.

The ABCA2 provides a rapid, accurate and sensitive analysis of the metabolic product so providing an unparalleled level of precision, accuracy and reliability while combining automated analysis and a highly efficient sample throughput. Based on the high performance HS2022 stable isotope analyser, the ABCA2 is a fully integrated breath CO_2 purification and ^{13}C measurement system. Breath samples in convenient septum capped containers are purified by a simple permeable membrane water trap and gas chromatograph before flowing directly to the mass spectrometer analyser for measurement of ^{13}C enrichment. The software integrated 240 position autosampler and bar code reader ensure that the whole process of measuring ^{13}C breath tests is completely automated.

^{13}C	Sample	Specification (Standard Deviation)
Ref Gas Injection Precision	100% CO_2 (n=5)	≤0.06‰
Ref gas in tubes precision	10ml 5% CO_2 (n=5)	≤0.06‰
Breath Precision	Breath in Exetainer (n=5)	≤0.1‰
Linearity	10 to 20ml 5% CO_2 in Exetainer	≤0.3‰ change

Power and Gas Requirements

Power	100-240 VAC
Helium	99.99.9%
Compressed Air	50 psi



THE UREA BREATH TEST (UBT):

- In 2010, the worldwide prevalence of *H Pylori* infection ranged between 7% and 87%. The average prevalence in Europe is around 30%.
- The UBT using ^{13}C-urea remains the best test to diagnose *H pylori* infection, it has a high accuracy and is easy to perform.
- For UBT, sensitivity is 88–95% and specificity 95%–100%.
- The UBT is an excellent test *H Pylori* eradication after treatment.
- Early eradication of *H Pylori* was shown to prevent gastric cancer in patients with peptic ulcer disease.

ISO 9001:2015 Certified

ISO 13485:2016 Certified

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