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Metabolic markers to diagnose typhoid fever

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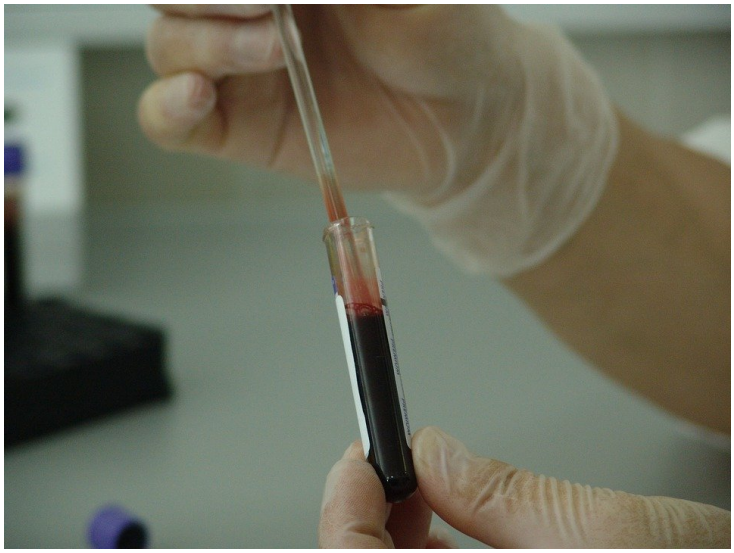

Researchers at the Oxford University Clinical Research Unit, Vietnam have identified a metabolite 'signature' that can accurately distinguish typhoid from other fever-inducing tropical diseases using patient blood samples.

The researchers used an approach called 'metabolomics', which involves measuring many small metabolites in a biological sample, to try and identify patterns that are unique to different diseases.

The researchers collected blood samples from multiple patients from Bangladesh, who fell into three groups: patients who had Salmonella Typhi in their blood, those who were suspected of having typhoid from their symptoms, and a third group who were suspected of having a different tropical disease characterised by fever (a 'fever-control' group).

Using mass spectrometry, the team analysed the metabolites in each patient blood sample to generate a metabolic 'signature' for two patient groups: those whose blood tested positive for typhoid, and fever controls. They then used this as a model to predict the identity of individual samples in a third group: patients suspected of having typhoid from their symptoms. They found that the model had excellent predictive power for distinguishing between culture-positive typhoid patients and patients with other types of tropical disease.

This approach could be potentially expanded into other tropical diseases, eventually allowing for more accurate diagnosis and more effective treatment, and hopefully reducing the use of unnecessary antimicrobials.