DIAMONDS - Diagnosis and Management of Febrile Illness using RNA Personalised Molecular Signature Diagnosis

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Our proposal will address the challenge of bringing personalised medicine into routine use in EU healthcare systems for diagnosis and treatment of common infectious and inflammatory diseases, which account for a up to a third of all medical encounters in primary care and hospital. The diagnostic process in clinical medicine has been based on recognition of a constellation of symptoms and clinical signs, supported by laboratory tests.

However, a definitive diagnosis is currently made in only a minority of patients presenting to healthcare with suspected infection or inflammation. We have previously shown that individual infectious and inflammatory diseases are characterised by unique patterns of host gene expression, and that diagnosis of individual diseases can be based on small numbers of uniquely expressed genes.

We propose a new diagnostic classification of infectious and inflammatory diseases, based on the discriminatory ability of a minimal set of genes, which is able to distinguish all common conditions simultaneously, an approach we call Personalised Molecular Signature Diagnosis (PMSD). In partnership with 22 hospitals in 11 EU countries, and biotechnology groups in academia, SMEs and industry, we will develop a device to detect genes required for PMSD.

We will then undertake a large-scale pilot demonstration in diverse healthcare settings in Europe, to establish the benefit to patients, reduction in healthcare resource use, cost effectiveness and acceptability to patients and carers, of PMSD.

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