Bioinformatics of ayurvedic medicine sources and treatment response stratification

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Ayurvedic medicine, originated over three centuries ago in India, is a system of medicine built on the individualized description of the individual, environment and the disease. Ayurvedic treatment formulations have always had a large degree of individualization or subgrouping, ideas that western medicine is beginning to embrace with precision medicine. Large emphasis in ayurveda is on understanding body construction and interaction with diet and lifestyle, and most, if not all, products used for treatment have natural sources of origin such as mountain herbs and plants. Over 1,000 different compounds or mixtures have been described in various literature, and anecdotal efficacy can be found in western texts. More controlled studies are now being designed to compare these against western/allopathic treatment protocols in areas such as diabetes, schizophrenia, rheumatoid arthritis and other inflammatory conditions. The goals of this study are to, in collaboration with Indian scientists, a) determine compounds and mixtures that show efficacy in a controlled randomized trial, b) advanced data integration of genomics, clinical factors and metagenomics, in order to build predictive frameworks of treatment outcomes for learning prognostic factors, and c) bridge ayurvedic concepts of compounds/substances showing efficacy with western medical understanding, relating treatment concepts at a molecular or biological pathways level.

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