

Announcement of National Analytical Facility for Nutrition & Metabolism Research

India is plagued by both maternal and childhood malnutrition, and high incidence of non-communicable diseases (NCDs) and metabolic syndromes (MetS). The prevalence of stunting and wasting in the country is unfortunately one of the worst in the world. Both under-nutrition and over-nutrition are well documented to have a wide impact on human growth leading to neurocognitive deficits in children to obesity/diabetes and cardiovascular diseases in adults.

However, the impact of pre-clinical and clinical research, aimed at investigating and understanding the detrimental effects of both under-nutrition and over-nutrition, has remained poorly evaluated due to lack of access to facilities that assess: (i) Uptake and utilization of macro- and micronutrients, (ii) Lean mass to fat mass ratio (iii) metabolomics and (iii) differential energetic contributions of carbohydrates, proteins and fats especially those derived from native and/or fortified varieties of crops/supplements.

R&D in nutrition/metabolism and human intervention efficacy programs are inherently dependent on the use of non-radioactive stable isotopes. For example, nutrition research supported/funded by IAEA using deuterated water and ¹³-Carbon labeled vitamins and proteins/carbohydrates/fats have been critical in global efforts in addressing malnutrition and metabolic diseases.

In this context, Department of Atomic Energy and Tata Institute of Fundamental Research (TIFR) propose to establish a State-of-the-art National Facility that will enable and facilitate research on nutrition and metabolism, and support R&D efforts to tackle NCDs and malnutrition in the country. One of the key deliverables of this facility will be to establish a **SIMIANS** platform in close association with BARC (***SIMIANS: Stable-Isotope Methods & Imaging for Analytics in Nutrition Science***).

The facility will be based in TIFR-Hyderabad and set-up under the ambit of **ARUMDA (Advanced Research Unit on Metabolism, Development & Aging)**. It will enable both basic biology researchers and clinicians to enhance the impact

of their studies and act as a platform to foster collaborative research. To this end, TIFR will set-up R&D programs and nutritional cohorts in humans in collaboration with BARC, CMC-Vellore, St. John' s Research Institute, IISER-Pune and other participating institutions. The facility will also train young researchers to amplify the impact of studies in the domains of nutrition, metabolism and development.

The National Analytical Facility for Nutrition and Metabolism Research was announced on 22nd November 2021 at TIFR-Colaba campus, in the presence of several dignitaries including Prof. K. VijayRaghavan, Principal Scientific Adviser to the Government of India; Prof. S. Ramakrishnan, Director TIFR; and Prof. Gagandeep Kang, CMC Vellore.