Human Body: A virtual zoo of bacteria

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Ever wondered that the number of bacteria living within the body of an average healthy adult human is estimated to outnumber human cells? The non-human genes that are represented by human microbiota appear to be more than 1,000,000 as compared to 25,000–30,000 genes in human genome. The discovery of new generation sequencing technologies has provided a strong impetus to research in this area. These microbial communities in the body also called microbiomes seem to play a major role in human health and diseases. The bacterial diversity found in the guts of primates depends on the host species as well as the habitat of the hosts and the type of food they eat. A link between obesity and microbial communities living in our guts has already been suggested. The human gut has been estimated to contain more than 40,000 bacterial species, 9 million unique bacterial genes and 100 trillion microbial cells. Keeping in view the importance of microbes in our body, a global initiative known as human microbiome project (NIH common fund project with total budget of 115 million dollars) has been initiated. Due to their role in

health and diseases in human being the human microbiome project has become a part of the road map for medical research. This project envisages sampling of normal human volunteers from the digestive tract, the mouth, the skin, the nose and the female urinogenital tract. Recent research published in PNAS has shown that gut bacteria even modulate or influence brain development. By using measures of motor activity and anxiety-like behavior a group of researchers demonstrated that germ free mice display increased motor activity and reduced anxiety-like behavior as compared to mice exposed to a normal gut microbiota (See News and Views section). This raises the possibility of gut microbiota having effect even on organ development and their functioning. Unfortunately no initiative seems to have been taken to explore human microbiota from Indian population. Keeping in view the diversity of environment in which we live in India and our food habits lot more can be explored by learning the human microbiota from Indian population. Thus, there is a need to take an initiative to undertake studies in this direction.

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