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Identification of a Native Novel Oncolytic Immunoglobulin on Colon Epithelial Cells: An IgA/IgG Bispecific Heterodimeric Chimera

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The colonic mucosa undergoes rapid renewal with a turnover rate of approximately five days. Conventional dogma has contended that these mucosal cells after exfoliation undergo apoptosis and are excreted in a necrotic state. In 1991 we provided evidence that showed that these cells in large measure transit the fecal stream intact and viable and can be isolated from stool samples for further investigation. We developed a robust technology to isolate millions of these cells from small aliquots (0.5 gm) of fresh stool samples and examine them for biomarkers and other characteristics. This technology, that we termed COPROCYTOBIOLOGY allowed us to assess the expression of a number of biomarkers among which we identified IgA and a subpopulation of cells that co-expressed both IgA and IgG. This heterodimer was then shown to mediate a broad spectrum cytotoxicity against human tumor cells. In tissue culture these cells continued to generate this chimeric antibody over several generations. When we screened a cohort of about 60 subjects we observed a total absence of this immunoglobulin in two individuals of African/American origin suggestive of a germline deletion in these subjects.

Biography:

Padmanabhan Nair, Ph.D., FAAAS has done his B. Sc.(1946)University College, Travancore University, Trivandrum, Kerala, India; M.Sc, (1954) Ph.D. (1956) Royal Institute of Science, Bombay (Mumbai), India; Research Officer, (1958-1960) All-India Institute of Medical Sciences, New Delhi, India; Fulbright Scholar and McCollum-Pratt Fellow,(1960-19963) The Johns Hopkins University, Baltimore, Maryland; Head of Medical Research,(1963- 1983) Sinai Hospital of Baltimore, Inc; Research Scientist (1983-1998) Beltsville Human Nutrition Research Center, ARS, USDA, Beltsville, Maryland; Founding President and CEO, (2000) NonInvasive Technologies LLC, Elkridge, Maryland; Adjunct Professor of International Health, Johns Hopkins University Bloomberg School of Public Health, Baltimore, Maryland.