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INTRODUCTORY REMARKS

Contributions from the third Laboratory of Biochemistry Meeting, National Institute for Digestive Diseases "Saverio de Bellis" "From double to triple helix. The colorectal cancer model" (Castellana Grotte, Bari, Italy, 16 June 2007)

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Over the last several decades, the National Institute for Digestive Diseases "Saverio de Bellis" has accumulated ample research experience in the field of gastrointestinal cancer, in both the clinical and surgical sectors, as well as in basic science areas closely linked to proliferative diseases. One of the main focuses of the Biochemistry Laboratory has been investigation of the molecular mechanisms responsible for cellular proliferation in the gastrointestinal mucosa. The study of the factors regulating cellular proliferation of gastrointestinal mucosa concentrates particularly on the analysis of the various serum, tissue and luminal agents that seem to have a role not only in normal cell growth and differentiation of the gastrointestinal mucosa, but also in its neoplastic transformation. In this connection, our attention has been focused in particular on the study of such factors as sex steroid hormones, growth factors, the isoprenoid and mevalonate pathway, polyamine metabolism in gastric and colorectal cancer. In fact, the gastrointestinal tract undergoes continual solicitation by several factors that come in contact with the mucosa, deriving both from the blood stream and from the luminal side, and that regulate its trophism. A series of meetings has been set up aiming to stimulate discussions among researchers of our Institute and other interdisciplinary groups, and encouraging and facilitating further collaborations; this gave rise to the first Meeting "Isoprenoids, Steroids and Cancer" (April 2003). This relation, although still controversial, was discussed in great detail in the second Meeting "Inflammation, Myocardial Infarction and Colorectal Cancer. An integrated view" (April 2005), underlying the common pathways among these different pathologies. To reinforce these cooperative studies, we organized the third Laboratory of Biochemistry Meeting, "From double to triple helix. The colorectal cancer model", which was held in Castellana Grotte (BA, Italy), on 16 June 2007. Representative scientists in the field of chronic diseases (cardiovascular and gastrointestinal diseases and cancer) gathered to take advantage of this opportunity to exchange ideas, report their latest results, discuss the state of the art and promote possible future collaborations. Interesting scientific presentations were followed by thorough discussions of different topics probing the role of the genetic factors, and the importance of environmental factors in the dynamics of cell proliferation processes. Particular attention was paid to colorectal cancer, in which the "*diet, luminal factors and nutrients*" set has a pre-eminent role. After about 60 years of uncontested dominance, the "double helix" is no longer alone. In light of the interaction of the genes with the environment, the helix model becomes a "triple helix".

Besides the role played by genetic factors—the double helix—nowadays the role played by the environmental context—the triple helix—has been recognized as a decisive factor in the onset of disease. But it is not only the genetic and environmental factors that give the model a heuristic force: the triple helix has also been applied to the economic world, to the interactions that should take place among the research, enterprise and government sectors ("Eppur si muove" by Raffaello Vignali, Ed. Guerini e Associati, Chap. VII, pp 147–176).

Particular attention in the Meeting was devoted to evaluation of the interactions among genes, diet and colorectal cancer, focusing particularly on the effects of nutrients on colorectal tumorigenesis, in in vitro and in vivo models and

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in man, with the aim of identifying possible novel treatments associated with restoring the intake of the traditional Mediterranean Diet in cancer patients.

In fact, the Mediterranean Diet is at the heart of such studies, in line with the research themes that the interdisciplinary groups of the IRCCS "Saverio de Bellis" have developed over the years. Goal of the Meeting is to emphasize and highlight the importance of a new philosophy of treatment of colorectal cancer and other emerging health problems—overweight, obesity, metabolic syndrome, diabetes—correlated with the diet.

Moreover, the demand created by these new health needs to be satisfied by integrated actions undertaken in collaboration by research institutions, food producers and local and regional governments, aiming to develop and supply innovative food products with a beneficial effect on the health of citizens/users.

The round table "Ricerca, Industria e Sviluppo Locale" (Research, Industry and Local Development) was therefore the focus of the second part of the meeting. This offered researchers in the health field, managers of industries, representatives of the national and regional government, and local public administrators, the opportunity to compare and integrate their ideas and experiences. The intent was not only to provide arguments for debate on the role of research and industry for local growth but also to stimulate collaborations and the development of new food producers of a strongly innovative nature for the purposes of promoting consumer health. We, in fact, believe in a possible model of the food and nutrition system which offers a more comprehensive examination of the links between agriculture, health, environment and society, in a holistic and dynamic perspective, as defined by Jeffery Sobal (Sobal J, 2004. Food and Nutrition Systems. In: Smith A (ed). The Oxford Encyclopedia of Food and Drink in America. NY: Oxford University Press, pp 495–498).

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