MOLECULAR MECHANISMS OF ANTIBIOTIC ACTION ON PROTEIN BIOSYNTHESIS AND MEMBRANES

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Proceedings of a Symposium
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Edited by

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Preface

This volume contains contributions presented at a Symposium on "Molecular Mechanisms of Antibiotic Action on Protein Biosynthesis and Membranes" held in Granada, June 1st-4th, 1971.

The volume is divided into three sections. Section I, "Molecular Mechanisms of Antibiotic Action on Protein Synthesis", includes contributions presented at four sessions dealing with the effects of inhibitors of protein synthesis on the ribosome cycle, initiation, elongation and termination of peptide formation by eukaryotic ribosomes.

Section II, "Molecular Mechanisms of Antibiotic Action on Synthesis of Peptidoglycans" includes papers presented at one session on the mechanisms of action of antibiotics which prevent synthesis of bacterial and yeast peptidoglycans.

Section III, "Molecular Mechanisms of Antibiotic Action on Membranes", includes contributions presented at three sessions devoted to antibiotics affecting membrane function which dealt mainly with the ionophore group of antibiotics.

We wish to express our gratitude to the contributors for their readiness in preparing the manuscripts.

Madrid, Spain, May 1972

E. Muñoz
F. García-Ferrandiz
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1st Session. Chairman: M. SALTON

OPENING ADDRESS

F. Mayor

Ladies and Gentlemen,

The Symposium on Molecular Mechanisms of Antibiotic Action on Protein Synthesis and Membranes is now starting. It is the end of a long way from the day, two years ago, in Madrid, when talking with Dr. Spirin we thought about the possibility of organizing such a Symposium in Granada. In January 1970, I was extremely glad to receive a letter from Dr. Shemiakyn and Dr. Spirin offering their cooperation actually to carry out the project, suggesting the precise subject and the tentative date.

The Scientific Committee began work immediately. Its members were Dr. Spirin and Dr. Shemiakyn from the USSR, and Dr. Vázquez from Spain. Unfortunately, Dr. Shemiakyn died a few months later. He is the great absentee here today and it is my duty to remember him now.

Dr. Mikhail Shemiakyn

Mikhail Shemiakyn was born on July 26, 1908, in Moscow and died on June 26, 1970, in Riga. He earned his degree in chemistry at the University of Moscow in 1930. His first studies were on hydrolytic and oxidative-hydrolytic rupture of carbon-carbon bonds. This work led to a theory, developed with Dr. A.E. Braunstein, of amino acid metabolism catalyzed by phosphopyridoxal enzymes. Later he began to study the structure, synthesis and mode of action of various antibiotics. Among these should be mentioned his work on the tetracyclines, which resulted in the establishment of their absolute configuration and in the first total synthesis of the parent substance. In the last years of his life, Shemiakyn devoted particular attention to the study of the physicochemical basis of transport through membranes. This work was the logical outgrowth of his prior investigations into the chemistry and biochemistry of lipids, peptides, depsipeptides and proteins, and represented an important contribution towards elucidating the effect of depsipeptides and peptides on the cation permeability of artificial and natural membranes. Shemiakyn was the founder and Director of the Institute for the Chemistry of Natural Compounds in Moscow. He enjoyed a great authority among scientists and was a brilliant organizer of any scientific endeavour. Dr. Ovchinnikov could undoubtely tell us much more about this Soviet scientist. Dr. Ovchinnikov followed the organization of the Symposium with the same enthusiasm as Shemiakyn did. I am very grateful to him, to Dr. Spirin and to Dr. Vázquez, because they have been an extremely efficient Scientific Committee. It gives me great satisfaction to confirm how much Dr. Vázquez and his group are appreciated by the biochemists all over the world devoted to the mechanisms of action of antibiotics.

Let me mention my deepest gratitude to Drs. F. Sánchez-Medina and E. García Peregrín, Secretaries of the Symposium, and to all the members of the Department of Biochemistry of the University of Granada, because their organizing ability and help have been crucial for this Symposium to take place.

It is both an honour and a pleasure, indeed, to welcome you to Granada and to thank you all, coming from so many different countries, for your con-

tribution to the success of this Symposium. We have done the best we are able. If there is something we can improve upon, please tell us frankly.

I wish to thank especially the chairmen and speakers for accepting to participate in the meeting. It is especially agreeable to have with us Dr. Severo Ochoa the greatest friend, advisor and helper of Spanish biochemistry, who comes back to Granada of whose University he is Doctor Honoris Causa.

The University, the Superior Council of Research, the Spanish Society of Biochemistry and industry, are all together here today as symbols of the way we must follow to approach high levels of excellence in research. I wish to thank Dr. Rodriguez-Villanueva for his presence and the salutation he will address to you as President of the Spanish Society of Biochemistry.

A meeting like this really needs the cooperation of all the people and entities concerned. I would very much like to express to Antibioticos, S.A., the sponsors of the Symposium, how fundamental their help and financial support has been. Let me also thank the Patronato de la Alhambra and its Vice-President, Dr. Orozco Díaz, for giving us the opportunity of holding the meeting at this extremely nice and unusual place. I wish to mention the help provided by the French Embassy in Spain concerning the scientists of that country coming to the Symposium.

Finally, I wish to express my gratitude to the authorities of Granada who have come to give you their welcome to the town, before telling you personally of their warmest wishes at the receptions that the Ayuntamiento and Diputación will offer in your honour.

I am sure you will enjoy Granada and that you will come back in the future. Granada is a most beautiful place of the world to look round, in which to dream, to think, to explore. Granada is an historical crossroads of different cultures and races. It is for this reason that it is also very fitting to have this meeting in Granada: scientists from all over the world convene to discuss a subject, to strengthen bonds of friendship. One more, scientists