This report contains the collective views of an international group of experts and does not necessarily represent the decisions or the stated policy of the World Health Organization.

WORLD HEALTH ORGANIZATION
TECHNICAL REPORT SERIES
No. 361

WHO EXPERT COMMITTEE ON BIOLOGICAL STANDARDIZATION

Nineteenth Report

WORLD HEALTH ORGANIZATION
GENEVA
1967

PRINTED IN SWITZERLAND

CONTENTS

Requirements for Biological Substances

Annexes

WHO EXPERT COMMITTEE ON BIOLOGICAL STANDARDIZATION

Geneva, 28 November - 3 December 1966

Members : *

Dr D. R. Bangham, Director, Division of Biological Standards, National Institute for Medical Research, Mill Hill, London, England

Dr L. Greenberg, Chief, Biologics Control Laboratory, Department of National Health and Welfare, Laboratory of Hygiene, Ottawa, Ontario, Canada (*Rapporteur*)

Dr E. N. Melikova, Chief, Unit of Bacterial Vaccines, L. A. Tarasevič State Control Institute for Medico-Biological Preparations, Moscow, USSR

Dr R. Murray, Director, Division of Biological Standards, National Institutes of Health, Public Health Service, Bethesda, Md., USA (*Chairman*)

Dr G. Penso, Chief, Laboratory of Microbiology, Istituto Superiore di Sanità, Rome, Italy

Dr J. D. van Ramshorst, Chief, Department of Biological Standardization, Rijks Instituut voor de Volksgezondheid, Utrecht, Netherlands

Dr M. Rouchdi, Director-General, Public Health Laboratories, Cairo, UAR

Dr J. B. Shrivastav, Director, National Institute of Communicable Diseases, New Delhi, India (*Vice-Chairman*)

Dr J. Spaun, Deputy Director, Department of Biological Standards, Statens Seruminstitut, Copenhagen, Denmark

Dr W. W. Wright, Deputy Director, Division of Antibiotics and Insulin Certification, Food and Drug Administration, Washington, D.C., USA

Representative of the Food and Agriculture Organization of the United Nations :

Mr I. Davidson, Senior Research Officer, Central Veterinary Laboratory, Weybridge, Surrey, England

Secretariat :

Mr E. C. Hulse, Director, Department of Biological Standards, Central Veterinary Laboratory, Weybridge, Surrey, England (*Consultant*)

Dr A. N. Klimov, Director, Division of Biomedical Sciences, WHO, Geneva

Dr P. Krag, Director, Department of Biological Standards, Statens Seruminstitut, Copenhagen, Denmark (*Consultant*)

Mr J. W. Lightbown, Division of Biological Standards, National Institute for Medical Research, Mill Hill, London, England (*Consultant*)

Dr A. S. Outschoorn, Chief Medical Officer, Biological Standardization, WHO, Geneva (*Secretary*)

---

* Unable to attend : Dr A. Sohier, Director, Section of Virology, National Public Health Laboratory, Lyons, France.

Wld Hlth Org. techn. Rep. Ser., 1967, **361**

WHO EXPERT COMMITTEE ON BIOLOGICAL STANDARDIZATION

Nineteenth Report

The WHO Expert Committee on Biological Standardization met in Geneva from 28 November to 3 December 1966.

Dr P. Dorolle, Deputy Director-General, on behalf of the Director-General, welcomed the members of the Committee. He also welcomed the representative of the Food and Agriculture Organization of the United Nations.

Recalling the development of biological standardization, the Deputy Director-General stated that most of the members of the Committee had had long association with it and could be depended upon to maintain the high standard expected of the Committee. Reviewing briefly the agenda before the Committee, he said that over the years many international biological standards, reference preparations and reference reagents had been established, but more were needed. He cited some of the more important substances for which standards were to be considered. He also referred to the increasing responsibility of the Committee for adopting the sets of international requirements for biological substances.

GENERAL

The Committee considered some aspects of the general problems that exist when valid assays of certain biological preparations cannot be made with particular international standards because of differences in constitution between the standards and the test preparations, which may or may not be related to their biological activity. Examples of materials that present problems of this kind are : adsorbed and non-adsorbed vaccines, the tuberculins, snake antivenins (against the same species), families of antibiotics and hormones of human and animal origin. This last example is of concern in relation to the assay of certain hormones in human material by radio-immunoassay procedures. These recently introduced techniques have aroused much interest on account of their greater sensitivity and precision as compared to conventional assay methods. In many instances, existing international standards prepared from animal materials, which may be used satisfactorily in conventional bio-assays, cannot be used for assays of human material by radio-immunoassay techniques ; for this purpose, reference

material, generally of human origin, has to be provided. In view of the difficulties so often encountered in characterizing human reference material in terms of the relevant international standard, the Committee asked the WHO Secretariat to collect information that would enable a decision to be made on the general principles to be followed and the measures to be adopted in establishing international standards for particular biological substances of importance in medicine and in selecting suitable material.

PHARMACOLOGICAL

ANTIBIOTICS

1. Gramicidin

The Committee noted [1] that the collaborative assay of the proposed international reference preparation of gramicidin had been completed and that in accordance with the authorization in its seventeenth report,[2] the National Institute for Medical Research, London, had established the International Reference Preparation of Gramicidin and, with the agreement of the participants, had defined the International Unit for Gramicidin as the activity contained in 0.001 mg of the International Reference Preparation of Gramicidin.

2. Dihydrostreptomycin

The Committee noted [3] that the collaborative assay of the proposed second international standard for dihydrostreptomycin had been completed and that in accordance with the authorization in its sixteenth report,[4] the National Institute for Medical Research, London, had established the second International Standard for Dihydrostreptomycin in replacement of the first international standard and, with the agreement of the participants, had defined the International Unit for Dihydrostreptomycin as the activity contained in 0.001219 mg of the International Standard for Dihydrostreptomycin.

3. Viomycin

The Committee noted [5] that the collaborative assay of the proposed international standard for viomycin had been completed. The Committee

---

[1] Unpublished working document WHO/BS/858.

[2] *Wld Hlth Org. techn. Rep. Ser.*, 1964, **293**.

[3] Unpublished working document WHO/BS/829 and *Bull. Wld Hlth Org.*, 1966, **34**, 429.

[4] *Wld Hlth Org. techn. Rep. Ser.*, 1964, **274**.

[5] Unpublished working document WHO/BS/859