The Chinese saying on the cover has been used as a motivation for the International Atomic Energy Agency radiation and tissue banking programme.

Advances in
Tissue Banking
Vol. 7

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Editor-in-Chief: G. O. Phillips

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Advances in Tissue Banking

Vol. 7

Editor-in-Chief

Glyn O Phillips

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This is a special volume associated with the World Congress of Tissue Banking held in Boston, USA, to which all international Tissue Banking Associations contributed. The International Atomic Energy Agency provided from their extensive tissue banking programme. Thanks, in particular, are due to Dr Sam Doppelt and Jorge Morales for their support.

Regional Editors

A Nather (Asia Pacific)

National University Hospital Tissue Bank, Singapore

D M Strong (North America)

Puget Sound Blood Center, USA

R von Versen (Europe)

German Institute for Cell and Tissue Banking, Germany

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C.J. Yim, *Korea*

LIST OF CONTRIBUTORS

JORGE MORALES

IAEA Department of Technical Cooperation
Vienna, Austria

GLYN O. PHILLIPS

Phillips Hydrocolloids Research Ltd.
2 Plymouth Drive Radyr, Cardiff CF15 8BL, UK

TED EASTLUND

Division of Transfusion Medicine
Department of Laboratory Medicine and Pathology
University of Minnesota Medical School
Minneapolis, Minnesota 55455, USA

D. MICHAEL STRONG

Puget Sound Blood Center/Northwest Tissue Centre
921 Terry Ave, Seattle, Washington 98104, USA

JEROEN VAN BAARE, STEPHAN VEHMEIJER and
ROLF BLOEM

Netherlands Bone bank Foundation,
Portgebouw Noord, Rijrisburgerweg 10
2333 AA Leiden, The Netherlands

OCTAVIO V. MARTINEZ

University of Miami Tissue Bank
Department of Orthopaedics (R-12)
University of Miami, PO Box 016960
Miami, Florida, US 33101

AXEL PRUSS

Institute for Transfusion Medicine, Tissue Bank
University Hospital Charité
Schumannstr. 20/21, D-10117, Berlin

MOUJAHED KAO and GEORG PAULI

Robert Koch-Institut, Retrovirology
Norduter 20, D-13353, Berlin, Germany

MARTELL WINTERS

Bioburden Section Leader,
Nelson Laboratories, Inc.
6280 South Redwood Road
Salt Lake City, UT 82123

Y. YU, J.B. CHEN, J.-L. YANG and W.R. WALSH

Orthopaedic Research Laboratories
Prince of Wales Hospital
University of New South Wales
Sydney 2031 NSW, Australia

R. VERHEUL, N. JOHNSON and D.A.F. MORGAN

Queensland Bone Bank
Princess Alexandra Hospital Health Service District
Wooloongabba 4102 QLD, Australia

LARS FROMMELT

Institut für Infektiologie
klinische Mikrobiologie und Krankenhaushygiene
ENDO-KLINIK Holstenstr. 2, D-22607 Hamburg

LUTZ GÜRTLER

Friedrich Loeffler Institut für Medizinische Mikrobiologie Ernst
Moritz Arndt Universität, Martin-Luther-Strasse
D-17487 Greifswald

THOMAS VON GARREL

Klinik für Unfall-, Wiederherstellungs- und Handchirurgie
Philipps Universität, Baldingerstrasse, D-35043 Marburg

PAUL L. ROMAIN

Department of Rheumatology
The Cambridge Hospital
1493 Cambridge Street, Cambridge, MA 02139

JEROEN VAN BAARE

Netherlands Bone bank Foundation
Portgebouw Noord, Rijnsburgerweg 10
2333 AA Leiden, The Netherlands

GER KROPMAN

Euro Skin bank, Beverwijk, The Netherlands

MARCO ANTONIO GARCES MORALES

and CESER ALEJANDRO REYNAGA LUNA
Plastic and Burns Department
Hospital Nacional Arzobispo Loayza
Av. Alfonso Ugarte s/n Lima, Peru

HENRY J. MANKIN

Orthopaedic Oncology Service
Massachusetts General Hospital
Harvard Medical School, Boston, MA 02114

WONG YONG SHON, CHANG YONG HUR

and SOONG HYUN JUNG
Department of Orthopaedic Surgery
Guro Hospital, Korea University
#80, Guro-Dong, Guro-Ku, Seoul, Korea 152-703

PETR VISNA

Traumatological Hospital

Ponavka 6, 602 00 Brno, Czech Republic

JIRI ADLER

Tissue Bank, University Hospital Brno

Czech Republic

L. PASA and R. HART

Traumatological Hospital Brno

Czech Republic

J. FOLVARSKY

University Hospital, Hradec Kralové

Czech Republic

V.I. SAVELIEV, I.A. KUZNETSOV, A.V. KALININ,

A.A. BULATOV and I.A. SOLODOV

Russian Research Institute of Traumatology and Orthopaedics
named after R.R. Vreden

Baikov Str. 8, 195427 St. Petersburg, Russia

A.V. KALININ, V.I. SAVELIEV and A.A. BULATOV

Russian Research Institute of Traumatology and Orthopaedics,
named after R.R. Vreden

Baikov Str. 8, 195427 St. Petersburg, Russia

LUCA DAINESI, GIANLUCA POLVANI,

ANNA GUARINO and PAOLO BIGLIOLI

Department of Cardiac Surgery

University of Milan-Italian Homograft Bank (BIO)

Centro Cardiologico Monzino, IRCCS

Via Parea 4, 20138 Milan, Italy

MARILENA FORMATO

Department of Physiological, Biochemical and
Cellular Sciences, University of Sassari
Via Muroni 25, 07100 Sassari, Italy

HAN-KI PARK, YOUNG-HWAN PARK, SANG-HYUN LIM,
JONG-HOON KIM, and BUM-KOO CHO

Yonsei Cardiovascular Research Institute
Cardiovascular Hospital
Yonsei University College of Medicine
134 Shincheondong, Seodaemunku, Seoul, Korea

SANG-HO CHO

Department of Pathology
Yonsei University, College of Medicine
134 Shincheondong, Seodaemunku, Seoul, Korea

JONG-CHUL PARK and DONG-WOOK HAN

Department of Medical Engineering
Yonsei University, College of Medicine
134 Shincheondong, Seodaemunku, Seoul, Korea

CHEE-SOON YOON

Department of Thoracic and Cardiovascular Surgery
College of Medicine, Konyang University
685 Gasuwondong, Seogu, Daejun, Korea

SHI-HO KIM

Department of Thoracic and Cardiovascular Surgery
College of Medicine, Donga University
3-1 Dongdaesindong, Seogu, Pusan, Korea

SAM-YOON LEE

Department of Thoracic and Cardiovascular Surgery
College of Medicine, Wonkwang University
344-2 Shinyongdong, Iksanshi, Junrabukdo, Korea

DORIS A. TAYLOR
Center for Cardiovascular Repair
University of Minnesota BSBE 7-105
312 Church Street 5E
Minneapolis, MN 55455

SITARAM EMANI, MATTHEW ELLIS
and RICHARD B. THOMPSON
Departments of Medicine and Surgery
Duke University Medical Center
Box 3345, DUMC Durham, NC 27710

DAGMAR HAVRANOVA, JIRI ADLER,
JANA KOMARKOVA, ANNA TEJKALOVA
and EVA HLAVACKOVA
Tissue Bank, University Hospital Brno
Jihlavská 20, 625 00 Brno, Czech Republic

EVA VLKOVA, HANA HRUBA and MONIKA HORACKOVA
Ophthalmology Department
University Hospital Brno
Jihlavská 20, 625 00 Brno, Czech Republic

MAHMOOD FARAZDAGHI
Tissue Banks International, 815 Park Avenue,
Baltimore, Maryland 21201, USA

SONJA GRUNEWALD, UWE PAASCH and
HANS-JUERGEN GLANDER
Department of Dermatology/Division of Andrology University
of Leipzig, Stephanstrasse 11
D-04103 Leipzig, Germany

CORNELIA THIEME, UWE PAASCH and
HANS-JUERGEN GLANDER
Department of Andrology, University of Leipzig
Stephanstrasse 11
04103 Leipzig, Germany

YOUNG-HWAN PARK, DONG-WOOK HAN and JONG-
CHUL PARK
Department of Thoracic and Cardiovascular Surgery
Yonsei Cardiovascular Research Institute
Cardiovascular Hospital
Yonsei University College of Medicine
134 Shincheondong, Seodaemunku, Seoul, Korea

SHI-HO KIM
Department of Thoracic and Cardiovascular Surgery, Donga
University College of Medicine
3-1 Dongdaesindong, Seogu, Pusan, Korea

SCOTT A. BARBOUR and WARREN KING
Palo Alto Medical Foundation
Palo Alto, California

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PREFACE

With confidence I can say that this is the most comprehensive volume dealing with tissue banking presently available. There are 27 full chapter contributions from the most distinguished and experienced practitioners in the subject: surgeons, microbiologists, and tissue bankers. The volume deals with all the major facets of tissue banking and utilisation: procurement processing, and utilisation.

Safety of Tissues (Section II)

Safety of allografts is now a major concern due to microbial and viral contamination of tissues even in the most sophisticated centres. Thus publication here of the International Atomic Energy Agency's Code of Practice for the Radiation Sterilisation of Tissues is an important event, as is their guidance on Standards and Public Awareness of this often misunderstood technology.

There is now convincing evidence that safety has been compromised by certain regimes used to prepare human tissues for transplantation. Drs Eastland and Strong document fully the diseases which have been transmitted though tissues, in some instances, leading to fatalities. Thereafter, Section 2 continues to provide an in-depth investigation of this problem, particularly in bone and a consideration of safe and effective methods to use such tissues. The University of Miami Tissue Bank has been a leader in methods of microbiological screening of donors, and the final tissues. Dr Martinez (Chapter 5) delivers this experience concisely to us. The potential presence of viruses poses a formidable challenge to the tissue banker, and even when introducing an end-sterilisation radiation step, the outcome is

not clear-cut. Dr Axel Pruss and colleagues (Chapter 6) have taken us forward in a giant step in their careful controlled study of this problem.

All roads seem now to lead to the desirability of adopting an end-sterilisation process if safe tissue are to be guaranteed (Chapter 7). When ionising radiation is used as part of a standardised working system of a tissue bank, then a degree of sterility assurance can be achieved. The IAEA programme has devoted considerable resources to define such procedures and the Code of Practice (Chapter 8) and Standards (Chapter 9) within which such a Code should be employed. There are limits to such use of radiation for bone, depending on the effects of radiation on mechanical strength and osteoinductivity (Chapter 10) of the final product. It is necessary to evaluate this aspect as Dr Yu and colleagues have done.

The Marburg Bone Sterilisation Process for femoral heads may not have a universal application, but its effectiveness when properly used cannot be denied, as demonstrated by Dr von Garrel and his colleagues (Chapter 11).

Ethical and Social Attitudes (Section III)

The social and legal problems which arose in the UK, as a result of the unlawful procurement of tissues, have adversely affected public attitudes towards the procurement of tissues for cadaveric donors. Dr Paul L. Romain (Chapter 12) sets out in stark terms the ethical challenges which this field now poses. The justification for the practice remains the health benefits which such donation permits. In particular, the availability of such tissues in the wake of disasters such as has been experienced first in the Netherlands (Chapter 13) and then in Peru (Chapter 14) is evaluated. These contributions provide the perfect justification for having a ready supply of safe tissue grafts for immediate treatment of burns or traumatic damage.

Tissue Grafts in Orthopaedics (Section IV)

The main customers of tissue banks continue to be orthopaedic surgeons. In this volume we are privileged to have an outstanding contribution from the doyen of this valuable technology — Dr Henry Mankin (Chapter 15). What a contribution he has made, and how glad we all are that he continues to be active and inspire further his one-time students, who are now distinguished exponents in their own right. This section demonstrates again the value of using both fresh and processed allografts in revision arthroplasty, and knee defects (Chapters 16 and 17). For the first time in this series we are able to learn of the long Russian experience in this field (Chapter 18 and 19).

Other Areas Covered (Sections V–VIII)

Cardiovascular grafts sperm banking and controlled process for the cryopreservation of tissues (Chapters 24–27) are other subjects covered in this volume. The motivation for such a comprehensive volume came in the Congress held in Boston which drew together all the international associations of tissue banking: American, Asia Pacific, Latin American and European. The whole world has been harnessed to construct this outstanding and historic volume.

Glyn O. Phillips
Editor-in-Chief

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