

Updates in Surgery



Alfonso Barbarisi (Ed.)

Biotechnology in Surgery

In collaboration with

Paolo Bechi

Paolo Innocenti

Carlo Alberto Redi

Francesco Rosso

Foreword by

Enrico De Antoni

 Springer

Editor

Alfonso Barbarisi

Department of Anesthesiological, Surgical and Emergency Sciences

Second University of Naples

Naples, Italy

In collaboration with

Paolo Bechi

Department of Medical and Surgical Critical Care

University of Florence and

Regional Reference Centre of Tuscany

for Locoregional Perfusion Therapies

Florence, Italy

Carlo Alberto Redi

Scientific Department

Fondazione IRCCS

Policlinico San Matteo

and Laboratory of

Developmental Biology

University of Pavia

Pavia, Italy

Paolo Innocenti

Surgical Sciences Department

“G. D’Annunzio” University

Chieti, Italy

Francesco Rosso

Department of Anesthesiological

Surgical and Emergency Sciences

Second University of Naples

Naples, Italy

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*To my patients,
To Alberto, Anna, Titty,
To Caterina,
To Alberto, Manlio, Anna,
with gratitude and love.*

Foreword

The Italian Society of Surgery has always had a great interest in biotechnological developments which provide new and appropriate solutions to current surgical problems.

In the last decade, at the annual Congresses, the Society has always aimed at treating biotechnological subjects in the knowledge that it will bring improvements to surgery in the 21st century, as was the case with technological development in the last century.

It is with great pleasure and interest that the Italian Society of Surgery offers its members and the whole medical community the opportunity to approach and to expand this branch of human knowledge for new applications in health care.

We therefore appreciate the efforts of our member Alfonso Barbarisi, President of the European Surgery Society (ESS) and Head of the Surgical Department of the Medical School at the Second University of Naples. Prof. Barbarisi has carried out research both in Italy and abroad for a long time with persistence, belief and philosophic attitude. The purpose of this work is to offer surgeons an approach to biotechnological techniques for their better use in every day surgical activity. The other goal is to attract biotechnologists to the complex query for *help* by medicine in the attempt to solve mankind's health needs in the best way possible.

I am convinced this book has a great scientific and practical value. It will make surgeons more conscious both in applying biotechnologies already in use and in more rapidly taking on future biotechnological discoveries in their culture. I am sure it will be accepted with enthusiasm by the Italian and international surgical community.

Rome, October 2010

Enrico De Antoni
President, Italian Society of Surgery

Preface

The 20th century has drawn to a close, the century when surgery took huge steps forward thanks to the progress of technologies. Now we are approaching the century of biotechnologies which will cause not only a progress in surgery, but a real *cultural revolution* which will completely change the approach to solving different problems in medicine. The aim of this book is to bring surgeons nearer to biotechnologies and to overcome the cultural gap dividing them.

A lot of biotechnologies have already been put forward and are used as a routine in surgical practice, to the complete unawareness of surgeons. It is important that surgeons realize this and understand the real mechanism of biotechnologies and their practical applicability, so they can be more aware of them and master their use.

A surgeon has always had a blinkered view of patient treatment because he has always suffered from the limits of his instruments. He has always been a technologist, in the sense that since the beginning of surgery he has always needed technology, from the scalpel to advanced surgical instruments. As a consequence he has always been a protagonist of technological progress, he has invented new surgical instruments, he has always modified them, he has used physical means (*iron and fire*); he has always cooperated with technologists.

In this new century, the first of the new millennium, an increasing amount of knowledge which is unusual to the surgeon's traditional technological training is encroaching upon surgery, hence the aim of this book. Now it is urgent to bring surgeons towards this knowledge (biotechnology) which by its nature is completely different from the technologies used so far, because it goes beyond the senses of sight and touch, which have been till now the essence of the surgeon's action.

The cellular and molecular dimension of biotechnologies is really by far the most advanced and modern surgical action. The use of bio-materials produced biotechnologically, the use of engineering tissues, the use of biomarkers is a routine that is not near the traditional action of surgeons who have a sort of distrust which lies not in a refusal of the new, but in poor knowledge of biotechnologies.

A solid, workable and cultural alliance between biotechnologies and surgeons is required, as has already happened in the past between surgeons and technologies.

A common language between surgeons and biotechnologists will bring further, revolutionary progress to surgical sciences in the 21st century, which is purported to be the century of biotechnologies.

Naples, October 2010

Alfonso Barbarisi

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Contributors

Gianfranco Azzena

Center for Development of Advanced
Cell Therapy
University of Ferrara
Ferrara, Italy

Manuela Balzi

Department of Clinical Physiopathology
University of Florence
Florence, Italy

Alfonso Barbarisi

Department of Anesthesiological,
Surgical and Emergency Sciences
Second University of Naples
Naples, Italy

Manlio Barbarisi

Department of Neurosciences
Second University of Naples
Naples, Italy and
Istituto Neurologico Mediterraneo
NEUROMED
Pozzilli (IS), Italy

Paolo Bechi

Department of Medical and Surgical
Critical Care
University of Florence and
Regional Reference Centre of Tuscany
for Locoregional Perfusion Therapies
Florence, Italy

Daniele Boni

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Gennaro Cafiero

Department of Anesthesiological,
Surgical and Emergency Sciences
Second University of Naples
Naples, Italy

Francesca Castiglione

Department of Human Pathology
and Oncology
University of Florence
Florence, Italy

Vega Ceccherini

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Francesco Cetta

Department of Surgery
University of Siena
Siena, Italy
and Geriatric Institute
Pio Albergo Trivulzio
Milano, Italy

Paolo Cirri

Department of Biochemical Sciences
University of Florence
Florence, Italy

Vito D'Andrea

Department of Surgical Sciences
Sapienza University of Rome
Rome, Italy

Ruggero De Maria

Department of Hematology,
Oncology and Molecular Medicine
Istituto Superiore di Sanità
Rome, Italy

Paola Faraoni

Department of Clinical Physiopathology
University of Florence
Florence, Italy

Riccardo Gattai

Department of Medical and Surgical
Critical Care
University of Florence and
Regional Reference Centre of Tuscany
for Locoregional Perfusion Therapies
Florence, Italy

Matteo Giannelli

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Irene Giotti

Laboratory of Genetic and Cytogenetic
Medicine
Careggi Hospital Florence (AOUC)
Florence, Italy

Anna Grimaldi

Department of Anesthesiological,
Surgical and Emergency Sciences
Second University of Naples
Naples, Italy

Paolo Innocenti

Surgical Sciences Department
“G. D’Annunzio” University
Chieti, Italy

Guido Liddo

Surgical Sciences Department
“G. D’Annunzio” University
Chieti, Italy

Vincenzo Lionetti

Sector of Medicine
Scuola Superiore Sant’Anna
Pisa, Italy

Arianna Malgieri

Department of Biopathology
Tor Vergata University of Rome
Rome, Italy

Gerardo Marino

Department of Anesthesiological,
Surgical and Emergency Sciences
Second University of Naples
Naples, Italy

Marcello Maugeri Saccà

Department of Hematology,
Oncology and Molecular Medicine
Istituto Superiore di Sanità
Rome, Italy

Manuela Monti

Scientific Department
Fondazione IRCCS
Policlinico San Matteo
Pavia, Italy

Giuseppe Novelli

Department of Biopathology
Tor Vergata University of Rome
Rome, Italy

Desiré Pantalone

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Ferdinando Papale

Department of Anesthesiological,
Surgical and Emergency Sciences
Second University of Naples
Naples, Italy

Astrid Parenti

Preclinical and Clinical Pharmacology
Department
University of Florence
Florence, Italy

Alessandro Pingitore

Institute of Clinical Physiology
CNR-Fondazione G. Monasterio
Pisa, Italy

Angelo Pulcini

Department of Surgical Sciences
Sapienza University of Rome
Rome, Italy

Maria Chiara Quidadamo

Department of Biopathology
Tor Vergata University of Rome
Rome, Italy

Paolo Raimondi

Surgical Sciences Department
“G. D’ Annunzio” University
Chieti, Italy

Carlo Alberto Redi

Scientific Department
Fondazione IRCCS Policlinico San Matteo
and Laboratory of Developmental Biology
University of Pavia
Pavia, Italy

Giuseppe Resta

Center for Development of Advanced
Cell Therapy
University of Ferrara
Ferrara, Italy

Maria N. Ringressi

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Domenico Risio

Surgical Sciences Department
“G. D’ Annunzio” University
Chieti, Italy

Camilla Rossi

Center for Development of Advanced
Cell Therapy
University of Ferrara
Ferrara, Italy

Francesco Rosso

Department of Anesthesiological,
Surgical and Emergency Sciences
Second University of Naples
Naples, Italy

Federica C. Sangiuolo

Department of Biopathology
Tor Vergata University of Rome
Rome, Italy

Federico Selvaggi

Surgical Sciences Department
“G. D’ Annunzio” University
Chieti, Italy

Paola Spitalieri

Department of Biopathology
Tor Vergata University of Rome
Rome, Italy

Antonio Taddei

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Francesca Tarantini

Department of Medical and Surgical
Critical Care
University of Florence
Florence, Italy

Paola Turano

CERM Magnetic Risonance Center
University of Florence
Florence, Italy