

IIR Workshop on Cold Applications in Life Sciences 2016

Refrigeration Science and Technology Proceedings 2016-5

Dresden, Germany
8 - 9 September 2016

ISBN: 978-1-5108-3068-4

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2016) by International Institute of Refrigeration
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact International Institute of Refrigeration
at the address below.

International Institute of Refrigeration
177 Boulevard Maiesherbes
75017 Paris
France

Phone: +33 1 42 27 32 35

Fax: +33 1 47 63 17 98

iifiir@iifiir.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

ADVANCES IN HYBRID COMPRESSION TECHNOLOGY FOR ULTRA-LOW TEMPERATURE REFRIGERATION ACHIEVEMENT	1
<i>N/A</i>	
BIO-INSPIRED CRYOPRESERVATION USING SYNTHETIC POLYMER ANALOGUES	5
<i>T.L. Bailey, L.C. Otten, M.I. Gibson</i>	
FREEZING AND LONG-TERM STORAGE OF BIOLOGICAL SAMPLES-QUALITY REQUIREMENTS AND TECHNICAL SOLUTIONS	9
<i>E. Pfeijfer, A. Werner</i>	
CRYOBANKS XXL: COST-EFFECTIVENESS OF LARGE CRYOBANKS AS A PREREQUISITE FOR AUTOMATION	13
<i>P. Siara, W. Flohr</i>	
CRYOBIOLOGY: CRYOPRESERVATION AND CRYOSTORAGE OF CELLS/TISSUES AND TISSUE ENGINEERED CONSTRUCTS	17
<i>L. Kuleshova</i>	
IMPORTANCE OF CONTROLLED ICE FORMATION FOR EFFICIENT CELL BIOBANKING	23
<i>L. Lauterboeck, O. Gryshkov, N. Hofmann, B. Glasmacher</i>	
EFFECT OF DMSO-FREE CRYOPRESERVATION ON MSCS OSTEOGENESIS IN 3D POROUS SCAFFOLDS	29
<i>O. Rogulska, Y. Petrenko, V. Lozinsky, A. Petrenko</i>	
IMPROVING OF CRYOPROTECTANT MEDIA FOR HUMAN CORD BLOOD NUCLEATED CELLS CRYOPRESERVATION	34
<i>O.O. Mykhailova, O.Y. Makashova, P.M. Zubov, L.A. Babychuk</i>	
IMPACT OF FROZEN-THAWED CORD BLOOD NUCLEATED CELLS COMBINED WITH EXTREME WHOLE BODY COOLING ON RAT'S NEUROHUMORAL REGULATION IN DYNAMICS OF AGING	38
<i>Y.V. Martynova, L.V. Babychuk, V.G. Babychuk, L.A. Sirotenko, N.G. Malova</i>	
INJECTABLE CRYOGEL MICROCARRIERS FOR CELL TRANSPLANTATION AND GROWTH FACTOR DELIVERY	42
<i>P.B. Welzel, B. Newland, H. Newland, A. Rosser, C. Werner</i>	
ULTRASOUND-ASSISTED CRYOPRESERVATION OF GAMETES	46
<i>A. Tannert, S. Otto, J. Hoerold, K. Jewgenow, K. Mueller</i>	
ELECTRON-BEAM GENERATED MACROPOROUS CRYOGELS	50
<i>S. Reichelt</i>	
CRYOPRESERVATION OF ADHERENT CELLS IN 96 WELL PLATES	54
<i>P. Kilbride, K.T. Mahbubani, S. Lamb, G.J. Morris</i>	
FREEZE! NEW PROTOCOLS FOR PRIMARY CELLS AND RELIABLE RESULTS AFTER FREEZING	59
<i>L. Steeb</i>	
COMPARISON OF VITRIFICATION AND SLOW FREEZING EFFICIENCIES OF HUMAN ZYGOTES	65
<i>M.P. Petrushko, V.I. Pynyayev, T.A. Yurchuk</i>	
DEVELOPMENT OF AN APPARATUS FOR CRYOPRESERVATION CELLULAR SAMPLES	69
<i>R. Bauer, S. Loeder, R. Pienkny, M. Hammel</i>	
COMPARISON OF HORMONAL STIMULATION INFLUENCE ON QUALITY OF STERLET (ACIPENSER RUTHENUS) AND SILVER CARP (HYPOPHthalmichthys molitrix) SPERM	74
<i>K. Butskiy, A. Puhovkin, E. Kopeika</i>	
UPCYCLING CORNEAL TISSUE: WHOLE CORNEAS CRYOPRESERVED BY DIFFERENT MEDIA FOR RESEARCH APPLICATIONS	77
<i>C. Petto, A. Noldner, M. Valtink, D. Labudde, G. Wittenburg</i>	
SCIENTIFIC CONCEPTION OF FREEZING STEPS AS A PART OF PHARMACEUTICAL PLATFORM TECHNOLOGIES	81
<i>J. Heidingsfelder, H. Reinsch, G. Spoerl, J. Klier</i>	
NOVEL CRYO-RACKS FOR DIFFERENT APPLICATIONS IN BIOBANKING	85
<i>R. Kretschmer, H. Reinsch, J. Heidingsfelder, G. Spoerl</i>	

SAFE, RELIABLE DRUG SUBSTANCE TRANSFERS VIA FROZEN STORAGE AND LOGISTICS IN SINGLE-USE CONTAINERS.....	90
<i>C. Gentile, M. Marciniak</i>	
STRATEGIES FOR THE DESIGN OF BI-LAYER SCAFFOLDS FOR THE REGENERATIVE MEDICINE AND TISSUE ENGINEERING	96
<i>H. Reinsch, R. Kretschmer, J. Heidingsfelder</i>	
THE CRYOPRESERVATION OF MICE SKINS FOR 5 WEEKS AT -20 °C AND OF HUMAN SKIN FOR 33 YEARS AT -196 °C.....	101
<i>S. Sumida, H. Yagi, A.W. Rowe</i>	
THE REPETITIVE FREEZE-THAW- IN VIVO AND IN VITRO SUBCULTURE METHOD (RFTIVVSCM) TO INDEFINITELY PRESERVE HUMAN BONE MARROW AND ADIPOSE TISSUE DERIVED MESENCHYMAL STROMAL CELLS (MSCs) FOR REGENERATIVE MEDICINE	105
<i>S. Sumida, T. Kitamura, N. Motomura, A. Saito, A.W. Rowe</i>	
NEWLY DESIGNED TISSUE/CELL STORAGE BAG FOR CRYOPRESERVED HOMOGRAFT BY APPLICATION OF CO2 LASER WELDING TECHNIQUE.....	111
<i>N. Motomura, A. Saito, Y. Kurosaki, K. Sato, K. Iwasaki, M. Takanashi, S. Tamura, T. Obase, K. Ueda</i>	
CRYOPRESERVATION - A FUNDAMENTAL UNDERPINNING TECHNOLOGY FOR THE DEVELOPMENT OF A SUSTAINABLE BLUE ECONOMY	117
<i>J.G. Day</i>	
Author Index	