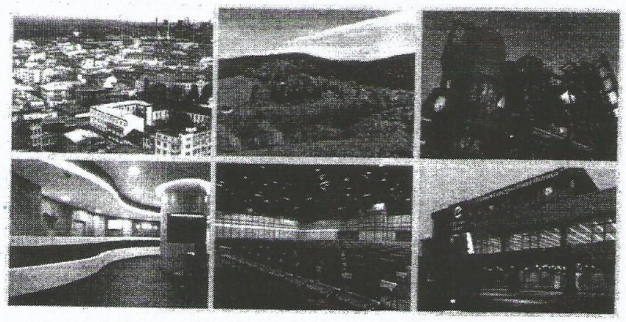
Society for Cryobiology

# 52nd CRYO2015
## Annual Meeting of the Society for Cryobiology

## ABSTRACTS BROCHURE



July 26–29, 2015

Clarion Congress Hotel Ostrava

Czech Republic

under the auspices of

the President of the Moravian-Silesian Region
Miroslav Novák

the Rector of the University of Ostrava
Prof. Jan Lata, MD, CSc.

the Director of University hospital Ostrava
Ass. Prof. David Feltl, PhD, MBA

Society for Cryobiology

International Society for Low Temperature Biology and Medicine

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David Rawson
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**SfC Program Chair:** Eric James

**Program Committee:**

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Erik Woods
Jason Acker
John Crowe
Dayong Gao
Roman Hájek

**Legend – type of action:**

Session, Parallel Session, Gala Evening, Poster Session

**Legend – conference rooms:**

Congress Hotel SAPPHIRE Room, Congress Hotel GOLD Room, Congress Hotel PLATINUM Room, Congress Hotel SILVER Lounge, Congress Hotel DIAMANT Room

## Organization and Conference Technical Support

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exchangers managing the heat transfer during the cryopreservation process, e.g. in a standard LN2-operating freezer chamber. Seeding with additional LN2-supply through the heat exchangers is possible. The CryoRACK remains locked during all process steps and acts as a thermal storing device during freezing, transport and cryogenic storage. The special design guarantees a reproducible freezing and re-warming process. For thawing, the heat exchangers of the CryoRACK are directly flowed through by pressurized hot steam triggered by a N2 gas flow. The revitalization system can be used after thawing even in aseptic ambience up to 48 hours without opening the dishes. The system was successfully tested for the cryopreservation of artificial bone and mucosa grafts. It provides the whole process chain of axenic cryopreservation, storage, transport, thawing and revitalization.

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Conflict of interests: N/A

## P57

## Effect of Age on Semen Freezability of Aksaray Malakli Shepherd Dog (Turkish Mastiff)

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The objective of this study was to determine the effect of age on semen quality parameters in Malakli (Turkish Mastiff). Therefore, twenty dogs were used in this research and separated into two age groups, age group 1 (≤3 years of age) and age group 2 (4-6 years of age). Semen samples were collected using digital pressure and massage. Semen volume, pH and motility were determined immediately after collection. Then, fresh semen was extended with a tris based extender, equilibrated (+5°C/2h), loaded into a 0.25 french straw, frozen in liquid nitrogen vapour (-120°C/15 minutes) and stored in liquid nitrogen (-196°C). Frozen straws were thawed in a water bath (37°C/30 seconds) and percentages of progressive motility, total motility, and sperm kinetic parameters (VCL, VSL, VAP, LIN, STR, WOB, ALH, BCF and hyperactivity) were determined with a computer assisted sperm analyzer (CASA, SCA Microptics, Barcelona). Abnormal spermatozoa rates (head, acrosome, neck, tail and cytoplasmic droplets) were assessed with sperm blue (Microptic, Barcelona). The results showed that the highest progressive, and total motility, were recorded as 4,8 ± 2,00; 63,8 ± 7,95 in age group 1 respectively, after freeze-thawed. Among age groups, there was a statically significance differences between progressive and total motility ($p<0,05$). The highest ALH, BCF and hyperactivity were 4,9±0,56, 6,0±1,10 and 15,9±6,05 in age group 1 respectively ($p<0,05$). There was considerable variation among age groups in ALH, BCF and hyperactivity, however there were no significant differences in other sperm kinetic motions. Significant differences were found according to abnormal spermatozoa rate ($p<0,05$). There was a correlation between ALH, BCF, hyperactivity and total abnormal spermatozoa ($p<0,05$). It appears that total and progressive motility, yet some kinetic parameters such as hyperactivity, ALH and BCF, starts to decline with age when the frequency of sperm abnormalities has increased, as evidence by specific age related sperm defects. We concluded that freezing and thawing processes increased abnormal sperm that are due to cell alteration for old males, and consequently, decrease the freezability of Malakli dog semen.

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Conflict of interests: N/A

## P58

## Influence of different freezing protocols on hemoglobin encapsulated in alginate microspheres.

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Nowadays hemoglobin-encapsulated microspheres are considered as an artificial erythrocyte substitute in transfusion medicine. However their application is restricted by the protein hem oxidation during storage. Cryopreservation may be a proper way of encapsulated hemoglobin storage. The research aim was to investigate the effect of different freezing protocols on encapsulated hemoglobin properties. Hemoglobin-loaded alginate microspheres were obtained by ionotropic gelation. Microspheres were frozen down to -20°C or -196°C at 1-2°C/min and 300°C/min cooling rate respectiveley. Thawing was carried out at 22°C. Hemoglobin functional activity was analyzed by ability to release oxygen in anaerobic conditions using sodium dithionite. The percentage of different hemoglobin forms in the microspheres was detected by alterations in protein absorption spectra. ABTS+ radical decolorization assay was used to investigate protein stability. Freeze-thawing of hemoglobin loaded microspheres has been shown to lead to partial hemoglobin loss and to the lowering of protein ABTS+ scavenging ability, the most expressed in the case of freezing down to -20°C. It has been demonstrated that hemoglobin loaded into alginate microspheres is able to release oxygen in anaerobic condition. Freezing does not affect this protein ability. The results obtained have revealed freezing of encapsulated hemoglobin down to -196°C as more effective.