

Nidacon News

The news letter from your ART supplier • No 2 • 2019

It's all about reproduction



The variety of all life on our planet – biodiversity – is vital to life itself. Since May, approximately 30 000 hard-working honeybees in a beehive in the Nidacon backyard are securing the reproduction of the local flora around the company, thereby playing a crucial role in preserving biodiversity.



Biodiversity provides a source of significant economic, environmental, health and cultural benefits to mankind (food, medicine, raw materials and clothing). Unfortunately, biodiversity is on the decline and is resulting in a reduction of honeybees and other pollinators which now are becoming endangered species.

Bees play a critical role in our ecosystem since the majority of all plants, and about one third of the world's crops, require cross-pollination to reproduce and thrive.

A partnership with the organisation called Beepartners led to the beehive at Nidacon as part of our CSR work. Andres Amaya Brinez, who started Beepartners, takes complete care of the hive, together with his wife Diana, but all employees at Nidacon are welcome to participate every time they check on the bees.

This year the bees have produced around 25kg of honey. The colour and taste of the honey depends on where the bees have buzzed, i.e. what kind of flowers

Bee facts:

- A bee can fly up to three kilometres from the hive to collect pollen and nectar
- Bees eat pollen and nectar. Nectar is energy rich and pollen is a kind of protein which is needed for the brood (eggs, larvae and pupae) to grow and become bees.
- One beehive can produce 30-50 kg honey/year.

- Honeybee queen – the most important bee in the hive. She is responsible for the reproduction of the bees.
- Drones – male bees They are responsible for fertilizing the queen
- Worker bees – female bees without full reproductive capacity. They have many working tasks, such as collecting pollen, nectar and water, cleaning, guarding the hive, honeycomb building, etc.

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grow nearby. Our honey is golden brown and has a rich taste. Most of the honey has been packaged as PureHoney 100.

However, some of it is left in the beehive so that the bees have food during the long, cold and dark winter of Gothenburg. The temperature in the beehive is kept around 20°C by the bees themselves, even if it is minus degrees outside! As soon as the temperature outside rises to about 10°C the bees start collecting and producing again.



Regulatory Affairs Manager
Ms. Manisha Olausson
Direct +46-31-703 06 48
manisha@nidacon.com



Customer inquiry lead to student project at Aalborg university

A customer put an interesting question to us earlier this year;

" We obtain a higher recovery of motile sperm when preparing the sperm sample prior to freezing compared to freezing unprepared ejaculate, but are they also better?"

This led to a student bachelor research project at Aalborg university, Denmark with the guidance of Dr Hiva Alipour, which concluded that density gradient centrifugation performed before cryopre-

servation demonstrates a tendency towards higher quality of spermatozoa.

The percentage of fragmented DNA from samples that were density graded and then cryopreserved (DG2), 25.38%, was lower than means of samples that were cryopreserved and then density graded (FR22), 34.44%. A study by Bungum et al.2007 found that pregnancy rates among patients undergoing fertility treatment dropped to as little as 3%, when spermatozoal DNA fragmentation

exceeded 30% (Bungum et al., 2007). Another study that included 48 Danish couples showed that a DNA fragmentation percentage of 27% resulted in no pregnancies in these couples, (Boe-Hansen et al., 2006).

Assuming accuracy of this correlation, it can be argued that performing density gradient centrifugation before cryopreservation is preferable to reduce the percentages of DNA fragmentation. The increase in the percentage of fragmented DNA seen in samples that have been cryopreserved and then density gradient processed, can be attributed to the circumstances surrounding the execution of cryopreservation and density gradient centrifugation.

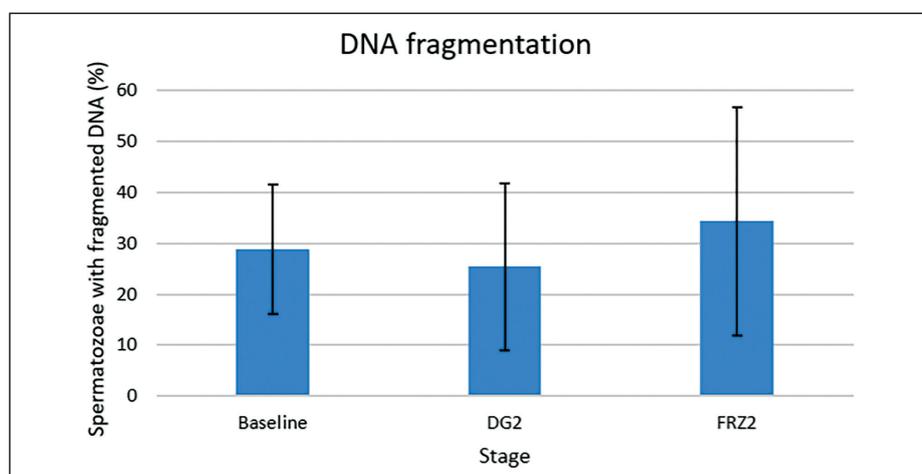


Figure 24 - DNA Fragmentation measured as percentages within 3 different stages. Baseline: DNA Fragmentation at baseline, DG2: DNA Fragmentation after cryopreservation of density graded spermatozoa, FR22: DNA Fragmentation after post-thaw density gradient centrifugation. The bar chart illustrates the mean of the measured data within each stage of the study, including the standard deviation (SD).

This year Nidacon attended Nordic Fertility Society's Annual Congress (NFS 2019) in Gothenburg, Sweden.

Established in 1999, the Nordic Fertility Society's membership includes, doctors, embryologists, biologists and laboratory technicians from five countries – Denmark, Finland, Iceland, Norway and Sweden.

A meeting with numerous interesting lectures, fun social activities with quiz, stand-up, a nice dinner with entertainment etc.

We helped everybody to stay healthy during the conference by serving Kombucha, a fermented tea drink that is supposed to be good for you in all kinds of ways.

It was also possible to buy your own glass sperm at the conference. Andrologist Ulrik Kvist exhibited his hand made glass oocyte and sperm installations. You can find more information regarding his company Zinkbryggan AB on www.zinczperm.com



A new cleanroom

Most of our productions are outsourced to a number of high-quality facilities, but we still do quite a few productions at Nidacon, both human and animal products.



Our cleanroom has been in use since 2005 for the production of our product line and this year we decided that it was time to rebuild in order to simplify our production processes and have the possibility of influencing every detail of the environment. Investments in quality in this field are crucial for a medical device company today.

A supplier of a cleanroom is a critical supplier and it was a prioritized and very important process to find the right one. The company Nordic Cleanroom fitted into all our requirements. They have a

long experience of working with cleanrooms and use a flexible profile system for their cleanrooms.

The new cleanroom is now ready and in full use after a hectic building period during the summer months, and we are very pleased with the supplier's job. We see this as a strategically important step which we all will benefit from.



Production Manager
Mr. Håkan Nilsson
Direct +46-31-703 06 36
hakan@nidacon.com



Emma Holmes joined the board of directors



We are pleased to announce that Emma Holmes at Nidacon has recently joined the board of directors for the Swedish Society of Andrology (Svensk Andrologisk Förening, SAF).



Svensk Andrologisk Förening

The organisation officially started in 1998 but has its roots in earlier Nordic societies for andrology, such as The Nordic Association for Andrology (NAFA) that goes back to the 1950's.

Today, SAF is part of the Swedish Society for Medical Practitioners (Svenska Läkar-sällskapet) and have for the last 20 years or so worked on Andrology becoming its own speciality within medicine. They have yearly meetings and offer courses in Andrology, and possibly also certificates in Andrology.

Since Emma works with andrology research in the field of Reproductive medicine, infertility and Assisted Reproductive Technologies (ART), she will bring her expertise in this area of andrology to the Society. It is an honour for

Nidacon to have an employee involved in an organisation like this in Sweden.

Furthermore, Emma is currently finishing up her PhD. in Andrology at the ANOVA clinic through the Karolinska Institute in Stockholm. The dissertation is planned to take place early 2020. During our workshops here at Nidacon, she often talks about her research findings and how they apply to handling sperm prior to ART.

Emma's latest publications

Holmes, E., Björndahl, L., & Kvist, U. (2019b). *Post-ejaculatory increase in human semen osmolality in vitro*. *Andrologia*, e13311. <https://doi.org/10.1111/and.13311>

Holmes, E., Björndahl, L., & Kvist, U. (2019a). *Possible factors influencing post-ejaculatory changes of the osmolality of human semen in vitro*. *Andrologia*, e13443. <https://doi.org/10.1111/and.13443>

Nidacon freezing media for equine use could help prevent extinction of the Rhinoceros

In an effort to prevent the rhinoceros from extinction, Leibniz Institute for Zoo and Wildlife Research in Berlin, Germany has compared Nidacon's equine freezing media (BotuCrio) with others on the market and has concluded that BotuCrio is the most effective medium to use.

In light of the ongoing global poaching crisis and overall dismal outlook regarding the conservation status of all rhinoceros species, the value of captive, assisted-breeding programs is becoming

increasingly important. The northern white rhinoceros is one such example, with only three living but infertile individuals left on the planet. This shows how

earlier, improved systematic collection and cryopreservation of male and female gametes could have contributed to the current efforts to use IVF and embryo production to prevent this species from becoming extinct.

The new protocol for improved cryopreservation of rhinoceros sperm suggested in this study, helps by improving the quality of male rhinoceros' gametes for long-term preservation, thereby, better preserving the genetic diversity of the species and preventing future disasters.

Ref:
Cryopreservation in rhinoceros – Setting a new benchmark for sperm cryosurvival
Hermes R et al, Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany
PLOS ONE | <https://doi.org/10.1371/journal.pone.0200154> July 11, 2018



Animal Product Specialist
Ms. Anna Nilång
Direct +46-31-703 06 38
anna@nidacon.com

Upcoming events

- 75th ASRM Scientific Congress & Expo
October 12–16, 2019, Philadelphia, Pennsylvania, USA



Impacting Reproductive
Care Worldwide

- Nidacon Basic Semen Workshop
7 November 2019, Gothenburg, Sweden



- AAEP annual convention and trade show
7–11 December, Denver, USA



**Annual Convention
& Trade Show**

- ASPIRE The 10th Congress of the Asia Pacific Initiative on Reproduction (ASPIRE 2020)
April 16–19 2020
Philippine International Convention Center,
Pasay, Philippines



Who to contact



Product Manager
Ms. Ann-Sofie
Forsberg
ann-sofie@nidacon.com
Tel: +46-31-703 06 42



Logistics
Mr. Dennis
Johansson
dennis@nidacon.com
Tel: +46-31-703 06 37



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