

PANORAMA NEWS

AUTUMN 2022 N°83 QUARTERLY NEWS SHEET

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- A new platform specifically for the LAS community
- PANORAMANEWS meets Selma Tir

NEW ALPHA RACK WASHER: IT'S TIME TO ACT!

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REDEFINE OPERATIONAL EFFICIENCY AND SUSTAINABILITY

+75% EXTRA THROUGHPUT PER HOUR
-75% CONSUMPTIONS PER CAGE

Alpha condenses in its own name etymology the meaning of a new beginning, the very first letter representing at the same time the DNA dominant factor in the market arena, what we confidently expect this outstanding and innovative product will be for the next decade and hopefully more.

At IWT, as part of the Tecniplast group, for the past 30 years we have been engineering and manufacturing with relentless efforts and passion cage and rack washers as the core and central activity of our organization and by now we can proudly say that we installed close to 1100 RW units in Lab Animal facilities all around the world, from Canada to New Zealand, from Siberia to Brazil... a very tangible sign of constant commitment, persistent focus and great product ideas, then well executed!

The founding pillars of this great journey have always been 3 in our minds: first outstanding validated cage throughput, combined (and this is the difficult part!) with increasing energy efficiency and remarkable flexibility, for the buildings as well as for the users!

Now I can tell that the Alpha RW, along the line of its glorious predecessor models, the 700 series, the 900WP/GP and the current Atlantis family, will take these pillars to the next and unprecedented level.



Edoardo Bernardini, Managing Director IWT S.r.l.

NEW

RW Alpha

WATCH PRODUCT VIDEO:



ACT System – Adaptive Cleaning Technology (Patent Pending)

- Innovative cleaning arms control combining independent vertical and oscillating movements
- Superior water coverage compared to traditional oscillating arm technology
- Direct and uniform spraying pattern on all surfaces of the load grants top level cleaning and rinsing efficacy
- 11% narrower chamber width to minimise load-nozzles distance without compromises on loading capacity
- Full control on the arms positioning and trajectories, allowing a precise cleaning and rinsing of bottles

Sustainability first

- Up to -75% consumptions per cage, only 300ml-10oz of water used per cage
- Smaller water tanks resulting in up to 13% energy savings
- Unique capability to adapt the cycle to the actual loaded area: save time and utilities
- Frequency inverters as a standard for efficient motors management and cycle flexibility

Unprecedented Performance

- New High Density presentation racks (Patent Pending): 75% extra loading capacity in a 30% lighter design
- Up to 154 mice cages (EM500) per load in a 11% smaller chamber volume
- Minimum 8 cycles per hour (AK-KAB certified) and over 1,230 mice cages (EM500) per hour
- Increased mechanical wash force (+39% TTI) thanks to optimized fluid-dynamic



Building-friendly design

- Only 100mm-4inches depth and 1950mm-77inches width pit dimensions
- Wall-to-Wall installation capability in less than 2500mm-98inches operational width requirements
- Just cold water supply in case of steam heated unit
- Electrically-heated set-up with standard productivity guaranteed

Empowered set of options

- Turnkey on-board vaporized H2O2 generator featuring fast aeration and catalyser
- Two process tanks design for efficient alkaline-acid alternate washing cycles
- Automatic tilting floor for the dripping of flat trolley surfaces
- Heat recovery system to pre-warm either drying air or incoming water
- On-board detergents storage with ergonomic handling logistics



SEE WHAT HAPPENED:



OUR CUSTOMERS' VIEW:



**Craig Thomson, Bioresources Manager,
The Florey Institute of Neuroscience & Mental Health**

“ Having seen the new RW Alpha Rack and Cage Washer during its launch at the FELASA Congress, I was impressed by the new improved washing motion which allows a greater wash capacity, and the new presentation rack design makes loading of difficult items, such as food hoppers, enrichment items and lids, easy and efficient. I think the RW Alpha Rack and Cage Washer is awesome. ”

**Carla Smith, Bioresources Manager,
Telethon Kids Institute, Perth Western Australia**

“ I recently attended the FELASA Congress and was able to be at the launch of the new RW Alpha Rack and Cage Washer from IWT. Some of the features that really excited me about the RW Alpha Washer include the Emergency Rope that replaces the emergency bar, what a fantastic idea, and what this means is no more accidental leaning on the emergency release bars when loading or unloading the chamber. Also, this smart idea takes up less space, which means the washer has greater washing capacity! The reduced door weight, the easier close / engage function of the door and pop out gasket are other features that will increase the ease of use and minimise push-pull forces, making washroom operations less difficult. I was amazed by the new floor layout, which once again is more user friendly, overall, IWT have created a new Rack and Cage Washer that functions as well (if not better) than the 'gold standard' Atlantis Rack and Cage Washer and which incorporates many ergonomic features that make washing quicker, simpler, easier and more efficacious. ”



**MARCO PAGANI
MARKETING &
COMMUNICATION MANAGER
IWT S.R.L.**

GNOTOBIOLOGY AND DVC®: WHAT EXPERTS SAY

Betty Theriault, John Hasenau and Stefano Gaburro were main speakers at the last webinar on Gnotobiology, discussing new trends while using DVC® System

The last webinar on Gnotobiology entitled **“Present and Future Gnotobiology trends; opportunity for improving animal modelling, with the use of 24/7 bio-exclusion home cage monitoring housing systems”** was moderated by **Stefano Gaburro**, Scientific Director at Tecniplast S.p.A. and conducted by **Betty Theriault** (DVM, DACLAM) and **John Hasenau** (DVM, DACLAM). They show us the results they have attained in this interesting online event.



Stefano, as a moderator of the webinar, can you summarize the outstanding results obtained with the DVC® technology?

The Digital Ventilated Cage (DVC®) technology-based discoveries were an eye-opener for many researchers

both as regards welfare and science. For instance, just to name a few the important work of Pierson and co. University of Oxford regarding how the room light can affect the locomotion in the animals 15 fold, or how the effects of cage change can persist up to 5 days.

Therefore, cage-change activities should be taken into account if experiments are to be run in the following days.

In conclusion, **leveraging stress-free technology via DVC® is changing the way experiments are conducted and it will unveil new compounds' effects, genotype behavioral repertoire, and animal discomfort.**



John, why do you think that this new technology is so important for the gnotobiology community?

With the use of the hermetically sealed housing system technology becoming more accepted to allow greater study diversification and increased throughput in the same foot space, there has also been the

need for enhanced animal monitoring.

The addition of the DVC® technology allows a greater evaluation of the animals under study and better welfare determinations. This can help with reproducibility and rigor, and associated study data outcomes and very importantly biosecurity of the units.



Betty, Gnotobiology has an ongoing exponential increase usage in studies. Do you think that the DVC® technology can support this trend?

Trends in recent years have been towards the incorporation and use of hermetically sealed

caging systems to enhance capacity and throughput in gnotobiotic operations. Inherent in the use of these caging systems is the risk for cage level contamination with each cage intervention. Additionally, cage interventions require the use of biological safety cabinet usage, and the more

WEBINAR

Present and future gnotobiology trends; opportunity for improved animal modelling with the use of 24/7 bio-exclusion home cage monitoring housing systems

MODERATOR:

Stefano Gaburro, PhD
Tecniplast S.p.A.

THURSDAY, JUNE 23, 2022
4:00 PM CEST

investigators that may need to share these resources (hermetically sealed caging systems and biosafety cabinet equipment), the more time constraints may exist for access. **My opinion is that the integrated use of DVC® technology as it relates to monitoring germ-free or ex-germfree animals utilised in interventional studies, may help to increase availability of animal monitoring parameters, especially activity over time, while decreasing the frequency of direct cage interactions.** Consequently, any decrease in direct cage interaction can translate into **decreasing the risk of cage level contamination.** Another aspect of DVC® technology that may improve animal welfare and enhance gnotobiotic operations is the performance metric data that can be obtained from the system. Many groups utilizing hermetically sealed caging systems are balancing cage densities with extended cage change intervals. Again, the drive for this is in decreasing the frequency at which the cages require intervention and thus decreasing the frequency of opportunity to contaminate the animals in the cages. With the data on environmental quality parameters available, objective data sets may be able to be generated in support of delayed cage or bedding change intervals based on animal densities as well as microbiome status. Cage change interval informs not only study design for gnotobiotic operations, but also animal husbandry and care support for these studies.

John, what do you think about DVC® technology applied in Gnotobiology?

The integration of DVC® Technology with Hermitically sealed units offers a dual advantage in the Gnotobiology area. **The Biosecurity of the housing unit can be the first component of this addition, allowing the bedding algorithm to extend out housing change outs related to the bedding conditions.** Thus decreasing the need

to open and possibly contaminate the animals in the unit. Strict adherence to SOPs to prevent any biocontamination is still the most important aspect, but a decreased need and frequency of opening the housing is a critical component in maintaining biosecurity. The second aspect is the Animal Welfare and knowledge of the animal activity in relationship to this welfare component. The true advantage of this is not having to remove the housing unit from the rack to really have full evaluation of the animals, using a 24/7 evaluation component rather than a once or twice daily check that is the current standard in most vivaria.

Betty, why do you think that Gnotobiology researchers has a wish to better understand what can be achieved through continuous measurement of animal welfare?

Many of the investigators we work with have an interest in the association of germfree mice with specific biological agents. Essentially, this bridges bioexclusion with biocontainment as many of these agents are considered risk group 2 or biohazard risk 2. In essence, merging gnotobiotic studies with biosafety type studies. Many of these studies are looking at competition for environment within the gastrointestinal tract, but studies may also be looking at pathogenesis of disease onset. In addition to our standard health scoring of these animals based on body condition, health appearance, and weight, DVC® may be able to provide insight on activity kinetics which may form an additional avenue of animal welfare assessment in these types of studies.

LEOPOLDO ZAUNER
CORPORATE MARKETING &
COMMUNICATION DIRECTOR
TECNIPLAST S.P.A.

SPEAKERS:

- **Betty Theriault, DVM,**
DACLAM

*Gnotobiology :
new opportunities
post pandemic*

- **John Hasenau, DVM,**
DACLAM

*How non-invasive
home cage monitoring
models can improve their
translational value
in Gnotobiology*

Gnotobiology has an ongoing exponential increase usage in studies for many purposes. The webinar will show trends, reasons, and visions of Gnotobiology research in the coming years. The webinar will also show how gnotobiotic mouse models are being rapidly developed, and how the critical biosafe housing of these very valuable models is required. Additional non-invasive home cage monitoring of these models may improve their translational value. Monitoring of locomotor activity patterns (24/7) can be used, as diagnostic tools for the research with examples presented.

Indeed, we have seen with the last pandemic an exponential increase in study support for bioexclusion research. Mouse models are being rapidly developed in this area, and biosafe housing of these animal models is critical. Additionally, non-invasive home cage monitoring can improve the translational value of these research models.

This webinar will be most valuable for institutions where biocontainment and bioexclusion work is being considered or conducted, and for researchers who wish to better understand what can be achieved through continuous measurement of animal welfare, based on the use of non-invasive activity monitoring. Researchers and staff of these Bio-areas may also benefit from these technological improvements through the potential for decreased cage manipulations needed for animal welfare monitoring and husbandry assessments.

GNOTO BIOLOGY: TRENDS IN CHINA

TECNIPLAST CHINA has recently organized an interesting Webinar on Gnotobiology with the contribution of Joana Bom, Axenic/Gnotobiology and Mouse Facility Manager



The Tecniplast China Team

A four-handed interview with Chenyan Lu, Marketing Manager Tecniplast China and Joana Bom, Gnotobiotic expert at Instituto Gulbenkian de Ciência, Portugal, on the successful webinar held on May 2022.

The Tecniplast China team has done a good job, reaching almost 200 participants!

Chenyan, how do you see the Gnotobiology trends in China?

Just as Gnotobiology experimentation has become a highly specialized field, the specialties for GF assistants continue to multiply.

Meanwhile we did not see a clear growth trend in the Gnotobiology during Covid period, but instead a remarkable increase in of ABSL-3 & ABSL-4 experiments has been recorded in the last two years.

Joana Bom has made a fantastic presentation. Which session do you think was most successful in the mind of TP China Customers and why?

We enjoyed nearly 2hrs of feast cooked by Chef Joana. From which we have experienced not only authority in theory but also hands-on knowledge.

Since Gnotobiology is still an emerging area for the LAS community in China, every word from Joana was valued.





Dear Joana, how do you see Gnotobiology trends in China and how do they compare with European trends? Do you see any similarities in specific evolutions?

Gnotobiology in China has started recently, but **these**

last few years I have seen an exponential growth and development. The evolution is for sure different, as Chinese facilities can learn or take advantage of the learning curve that all the facilities in Europe have experienced for decades. The equipment and technologies available now are also different from 20 years ago and facilitates the everyday workload. For years, facilities have performed gnotobiotic experiments using Isolators, clearly sub-optimal for specific procedures (e.g delicate surgeries, or repeated sample collections). **Nowadays, recent technologies like the positive pressured individual ventilated cages (ISOCage P System) facilitate the work of those performing experiments with axenic animals, by allowing cage and animal manipulation under an axenic environment on a dedicated biosafety station.**

The combined use of both isolators and ISOCages do allow for a rapid growth and evolution of gnotobiology facilities, and the research outcomes that may arise from that.

I am optimistic on this evolution.

Which topics were the most interesting to the Audience?

My presentation was related to management and technical procedures, so the focus of the questions was technical.

I received questions about contaminations, but especially about **the microbiology screening performed on the animals to ensure the axenic status.** These may be the most frequent questions I receive, and it is normal. When you start a facility and must establish SOPs, and choose the way you will manage the service, it is particularly important to make sure contaminations are known, accepted, avoided, but also solved in a methodical way. **Maintaining the animals germ-free is the most challenging task of keeping a gnotobiotic facility running, proving that high standard of quality is always kept.**

Other questions were related to specific projects that we have developed in my facility. I have shared results of a cancer research performed with a Germ-free mutant strain that mimics a spontaneous mammary gland tumor.

THE TECNIPLAST CHINA MARKETING TEAM

**LIFE IN A BUBBLE:
Gnotobiotic Facilities
Management and SOPs**

Joana Bom
Axenic/Gnotobiology Facility Manager
Instituto Gulbenkian de Ciência
May 26th, 2022

无菌动物SOP执行与管理

泰尼百斯 (Tecniplast) 邀请了来自IGC科学研究所的专家 Joana Bom为大家呈现精彩的线上讲座, 快来参加!

<p>讲座内容</p> <ul style="list-style-type: none"> • 无菌动物工作人员SOP; • 物料进出与灭菌SOP (含饲料、垫料选择); • 换笼SOP; • 疫情下动物设施的运维管理。 	<p>参加方式</p> <p>本次讲座将采用预约制, 在提交报名后, 讲座链接将发送至邮箱。</p> <p>温馨提示</p> <ol style="list-style-type: none"> 1. 本次讲座语言为英文; 2. 本次讲座会议软件为 Microsoft Teams, 手机端需要下载应用, 电脑端无需下载, 点击链接即可直接进入。
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讲座时间
2022年5月26日 | 20:00

主讲人 Joana Bom 拥有超过十年的无菌动物设施管理和运维的经验; 现担任Instituto Gulbenkian de Ciência科学研究所无菌和悉生动物管理主任。

识别二维码报名讲座 更有机会与Joana互动

关注泰尼百斯微信公众号 不错过其他内容

A NEW PLATFORM SPECIFICALLY FOR THE LAS COMMUNITY

Diederik van den Berg, founder of Biotech-Xchange.com platform, tells us more about this useful tool in the LAS market



Dear Diederik, what is the idea behind the Biotech-Xchange.com platform?

Well, the precise idea was to create a solid, invite-only platform for the global laboratory animal science community. To build a reliable place where we can share 3R solutions, alternatives to animal

testing and help enhance animal welfare. But also, to share innovative products, services, courses and vacancies that are relevant for the LAS community.

The Biotech Xchange platform is accessible for vetted Laboratory Animal Professionals like: facility managers, animal technicians, veterinarians, researchers and suppliers. Commercial suppliers on the platform are a select group. They are approached to join based on the request of users and the added innovative value they bring to the platform.

Can you talk about the benefits they can get from your platform?

The main benefit of Biotech Xchange is that you can find many products and services related to animal welfare and LAS in one secure and private place.

This will help you to save time and become more efficient. So then, let's say you are searching for a method to enhance the 3Rs in your facility. Well, the best solution might be found on the other side of the globe and you could encounter solutions you weren't aware of before.

Additionally, the users have a direct influence in how the platform evolves. For example, there were many

requests to add transactional functionalities to the platform. So, this functionality has been developed and now you can also trade products or services directly on the platform.

Which is your time plan for the project and your expected results in one year from now?

In the coming 12 months the focus is on the following three things: **content, functionalities and getting the word out.** Furthermore, the plan is to add more languages to the six already available on the platform, based on user surveys and the expansion into other geographies.

When we're looking at getting the word out, we're working with various partners on how to further increase the reach of the platform.

By then, the goal for Biotech Xchange is to be well on its way to becoming the global go-to platform to find 3R related and innovative LAS solutions.

How can our readers get registered?

You can sign up with your LinkedIn account or you can also request access by emailing join@biotech-xchange.com (with your work email).

Of course, the easiest way to get registered is to get invited by a person who is already using the platform.

► <https://www.biotech-xchange.com/en/signup>

Why should we recommend that our readers get registered?

In the first place, **Biotech Xchange makes it easy for you to search multiple LAS solutions, products methods all in one place.** Also, you'll be updated frequently on what happens on the platform and what new solutions have become available.

Furthermore, it is a secure and private place to exchange information about 3R methods, products and other LAS related topics like events, webinars and vacancies.

Lastly, access for academics and research institutes is free.



SILVIA DALLA COSTA
COMMUNICATION &
EVENTS MANAGER
TECNIPLAST S.P.A.

PANORAMANNEWS MEETS SELMA TIR

A discussion on DVC® System for Circadian and Sleep Phenotyping



Selma Tir, PhD/DPhil Candidate in Clinical Neurosciences Nuffield Department of Clinical Neurosciences, University of Oxford, is the author of an important poster presented last May at the Society for Research on Biological Rhythms (SRBR) conference

Dear Selma, can you summarize your recent poster entitled “Validation of the Digital Ventilated Cage system for Circadian and Sleep Phenotyping”?

Circadian rhythms are internally generated 24-hour cycles of physiological and behavior changes that occur in all living things. They influence our sleep-wake cycles, eating habits and hormone release amongst other things, and disruptions of the circadian clock can contribute to increased risks of metabolic disease, obesity, depression and even cancer. The study of circadian rhythms and their disruption critically depend upon the study of mouse home cage behavior. **We thus investigated whether the DVC® System could effectively record locomotor activity under various light-dark cycles used to study circadian rhythms, and whether extended immobility records could be used to infer sleep.**

DVC® has been the tool to conduct the study and collect such important data. Can you comment on it?

The DVC® System is based upon widely used individually ventilated cages placed in a rack that continuously records home cage activity. **Clear, red and black IVCs equipped with individual LED systems can then be**

used to entrain animals to the room light cycle or individual cycles in every cage. For example, the black cages are especially useful for the study of jet lag. This system thus provides a great alternative to the use of light-tight chambers (LTCs or 'coffins') which are routinely used in circadian and sleep research. Moreover, the availability of data in real time and on a user-friendly server makes data collection much easier!

Are final data of the study aligned with the expected results?

Home cage activity data show that **the DVC® System provides sufficient sensitivity to detect changes in circadian rhythms and that animals can entrain to various light-dark cycles using the Leddy system in the black cages.** We are still analyzing DVC® defined sleep, but are enthusiastic that this system could provide an alternative to EEG/EMG recordings for the scoring of sleep/wake behavior.

Can you comment on the DVC® technology and tell us your vision of DVC® in the lab animal industry in the short term?

Preliminary data suggest that black IVCs with independent Leddy lighting provide an ideal alternative to LTCs for circadian phenotyping, and that this would allow the simultaneous analysis of up to 60 mice in a DVC® rack. Based on 6-12 mice per LTC, this is equivalent to 5-10 traditional LTCs in a much smaller footprint and with the improved biosecurity of an IVC. **It thus has great potential for the facilitation of circadian studies.**

GIORGIO ROSATI

**SENIOR PRODUCT MANAGER DIGILAB
TECNIPLAST S.P.A.**

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 **TECNIPLAST**
i n n o v a t i o n t h r o u g h p a s s i o n

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