

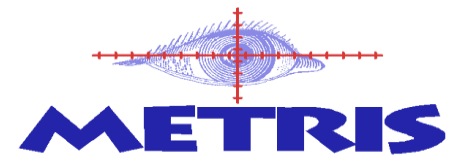


2020 Russia (Coronavirus COVID-19)

Виварий, уход лабораторных животных и
доклинические исследования на животных
под руководством GLP

GLP-Planet
1 July 2020

Levon Bachdasarian
Metris BV
Netherlands



DSI™

INSTECH

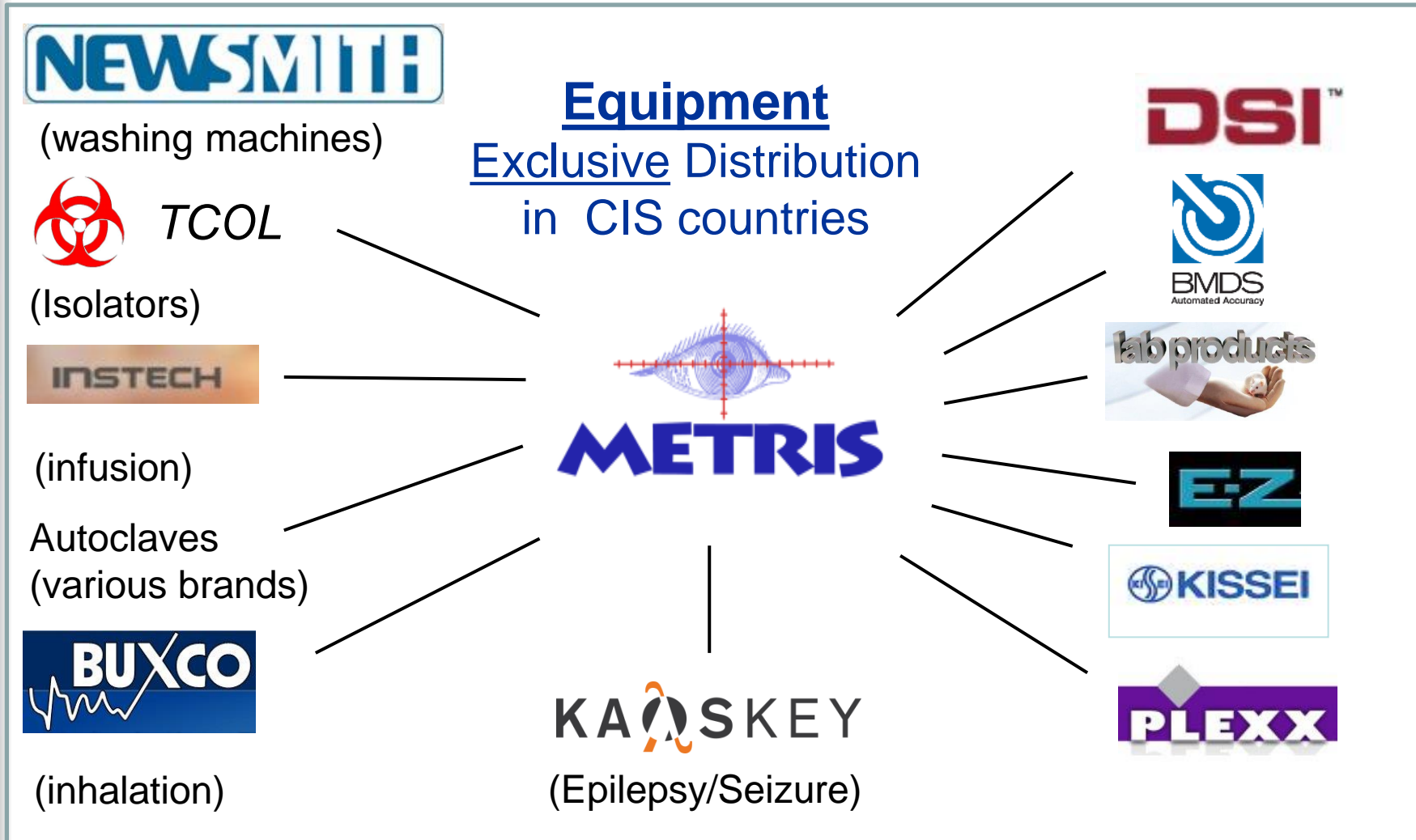


Company Overview

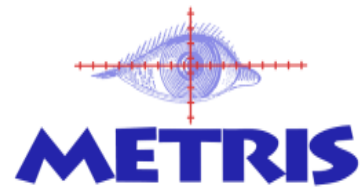
- ❑ Metris was established in 1994 in Netherlands
- ❑ Market presence of **25** years & customers in over 90 countries across Europe, America and Asia
- ❑ Metris develops, sells and supports innovative products and solutions to assess laboratory animal behavior & animal vocalizations.
- ❑ Metris differentiates itself by finding new solutions that are increasing efficiency, throughput and are completely non-invasive (animal friendly)



Our Strategic Partners



Our Strategic Partners



Research
 Scientific Partners
 (global alliances)



SCBMT
 RIHTOP
 SMU-NN

FMBA & RAMS

- *Testing & validation of new equipment*
- *Contract Research*

Product Portfolio

Advanced Analysis Equipment:

- ❑ LABORAS (behavior analysis)
- ❑ SONOTRACK (vocalization analysis)
- ❑ SMARTCHAMBER (controlled environment)
- ❑ SLEEPSIGN (sleep analysis)
- ❑ DATASCIENCES Telemetry (wireless physiology analysis)
- ❑ DSI/Buxco Instruments for respiration study

Product Portfolio

Vivarium Equipment:

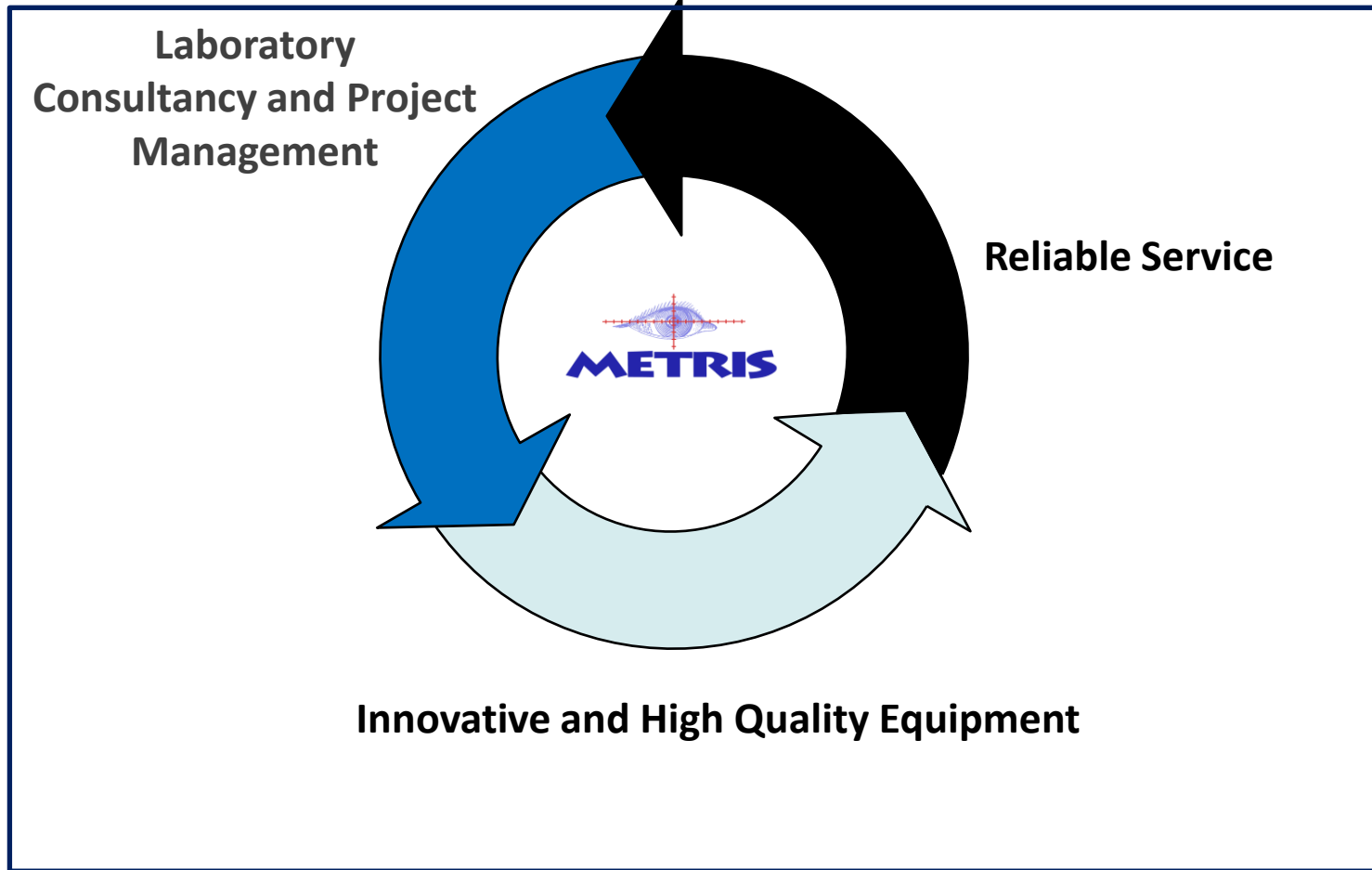
- ❑ Modular Laboratories (design and realization)
- ❑ Animal Housing (Open cages and IVC cages)
- ❑ Work benches (Cage change stations)
- ❑ Isolators
- ❑ Climate Chambers (animal breeding)
- ❑ Washing Machines and Autoclaves
- ❑ Waste Management Systems
- ❑ Animal Identification (RFID based)
- ❑ Metabolic Cages

Total Solution vivarium-laboratory-research

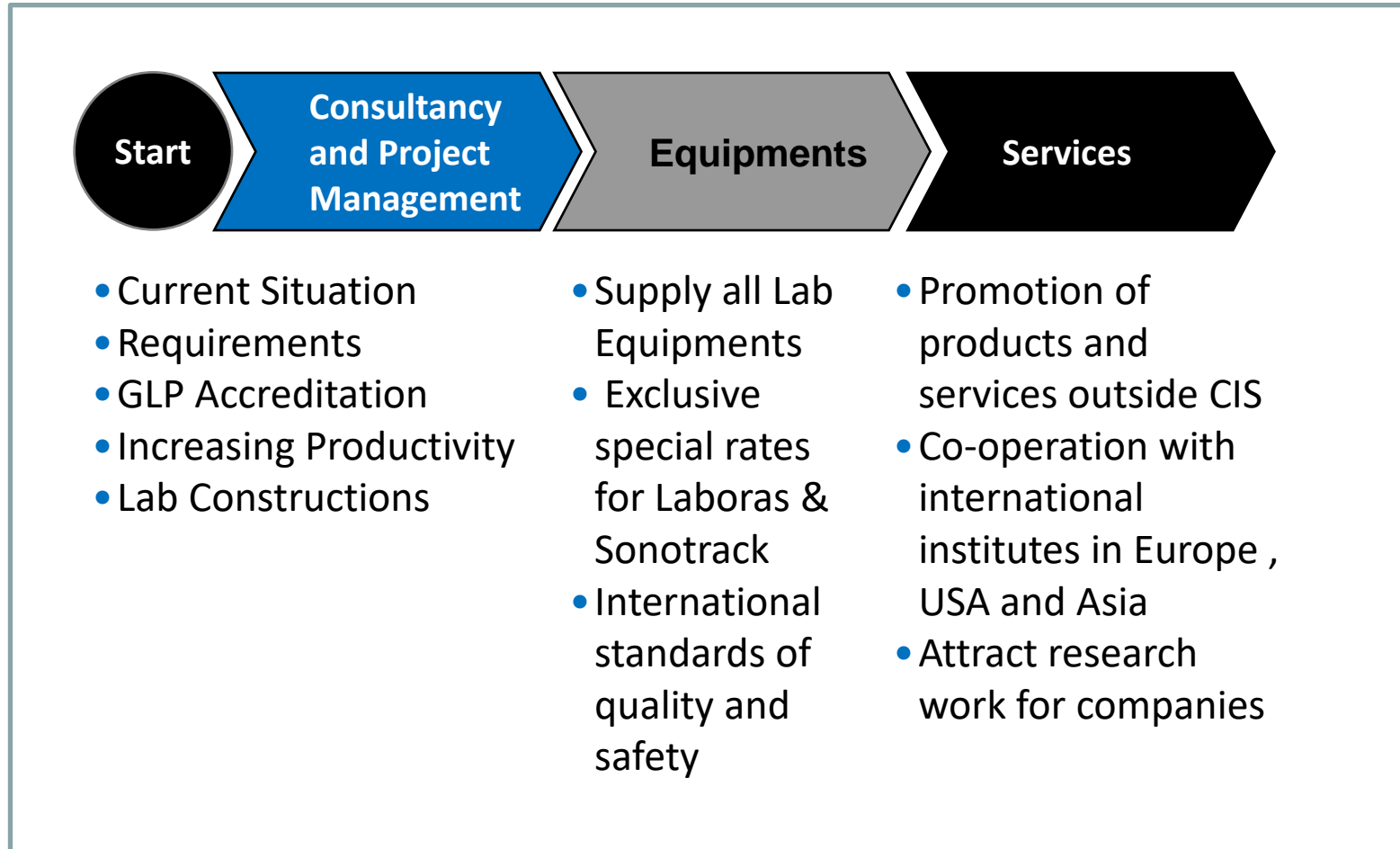
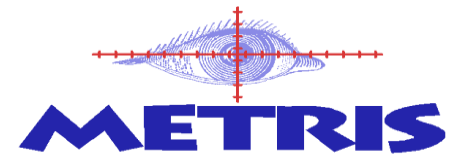
Why a total solution concept?

- ❑ Laboratories and vivariums in Russia will have to comply with International standards to enable collaborations and competition with Western companies.
- ❑ GLP **requirements will require** a different way of working, which requires an integrated approach / methodology involving animal housing facilities, equipment and researchers.
- ❑ Complexity of requirements is increased and puts pressure on the agreements!

Metris: Complete Laboratory Solutions



METRIS Offers: Quality, Experience, Reputation and International Network



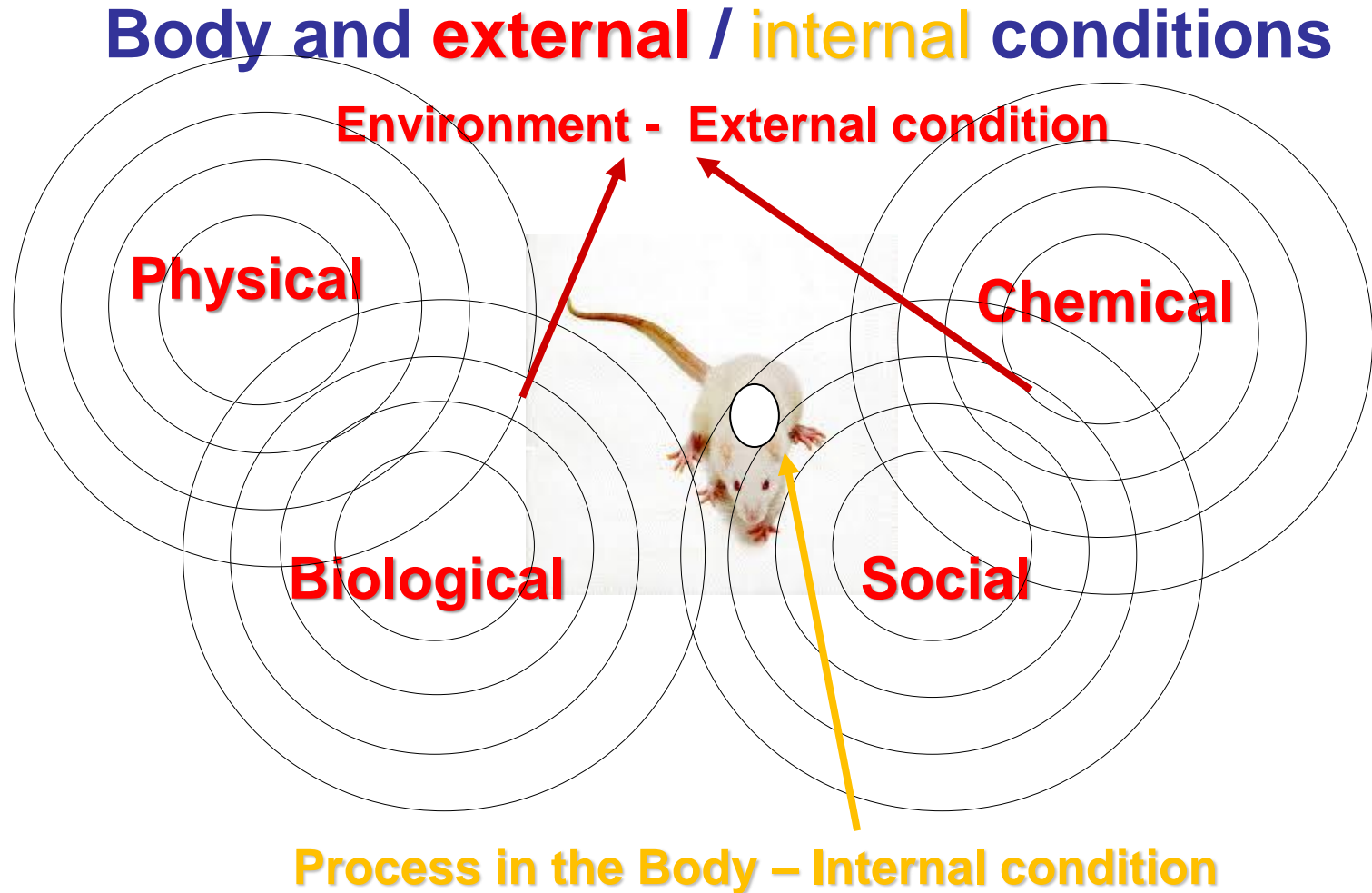
Pre-clinical research (QTF)

Goals of preclinical studies



- Correct research results
- Proper research statistics
- Useful conclusions from studies
- High Quality Data
- Reduced lead time
- Reduced count of animals
- Minimized cost

Physiology-Behavior



Preclinical study

BEHAVIOR =

Function { Internal stimulus, external stimulus }

Environment and Ecology

External stimulus= Change!

Internal factor=constant!?

Pharmacology

Internal stimulus = Change!

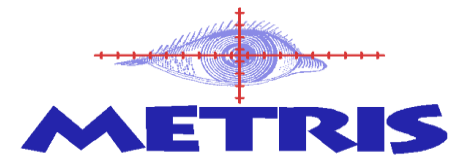
External factors=constant!

Where:

Internal Stimuli=function { **Internal** factors }

External stimuli=function { **external** factors }

Internal stimuli / external stimuli and behavior

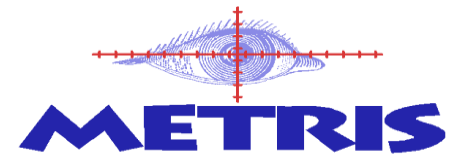


External factor and environmental variables

- Temperature = function {Climate, temperature control Unit }
- Airflow = function {air-conditioning}
- Barometric pressure = function {place, time}
- Humidity = function {high or place}
- Visual effect = function {what you see}
- Light = function {lights control unit, dark light cycle }
- Sounds = function {sounds generating equipment, voices}
- Vibration = function {refrigerators, ventilators, PCs, specific equipment}
- Electromagnetic waves = function {transmitting equipment, magnets, mobile phones}
- Smell = function {specific gases, perfumes, etc.}

Animal Facilities

BSL-3 General Procedures



Priority Procedures Risk Assessment

- The general facility procedures are scoped to provide overall biosafety and biosecurity practices and procedures for working in any of the ABSL-3 laboratories
- Specific standard operating procedures (SOP's) are required and will include biosafety and biosecurity practices unique to each ABSL-3 laboratory and the work conducted within that laboratory space
- Areas requiring specific SOPs will be identified

ABSL-3 Biosafety/Biosecurity

1. Entry procedure
2. Working within the laboratory
3. Exit procedure
4. Washing /Decontamination/ if **ABSL-3 Autoclaving**
5. Movement of equipment in and out
6. Animal procedures and transport
7. Transport of infectious material
8. Communication and data transmission
9. Lab status when not in use
10. Requirements of incident response plans
11. Medical Surveillance

ABSL-3 Biosafety/Biosecurity

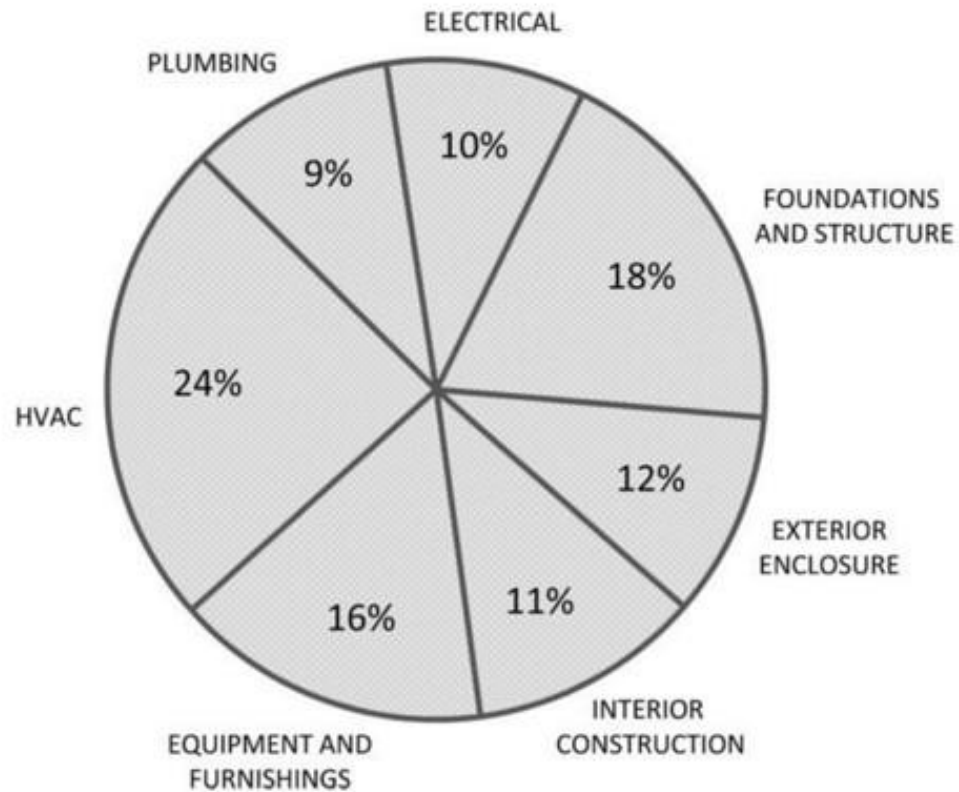
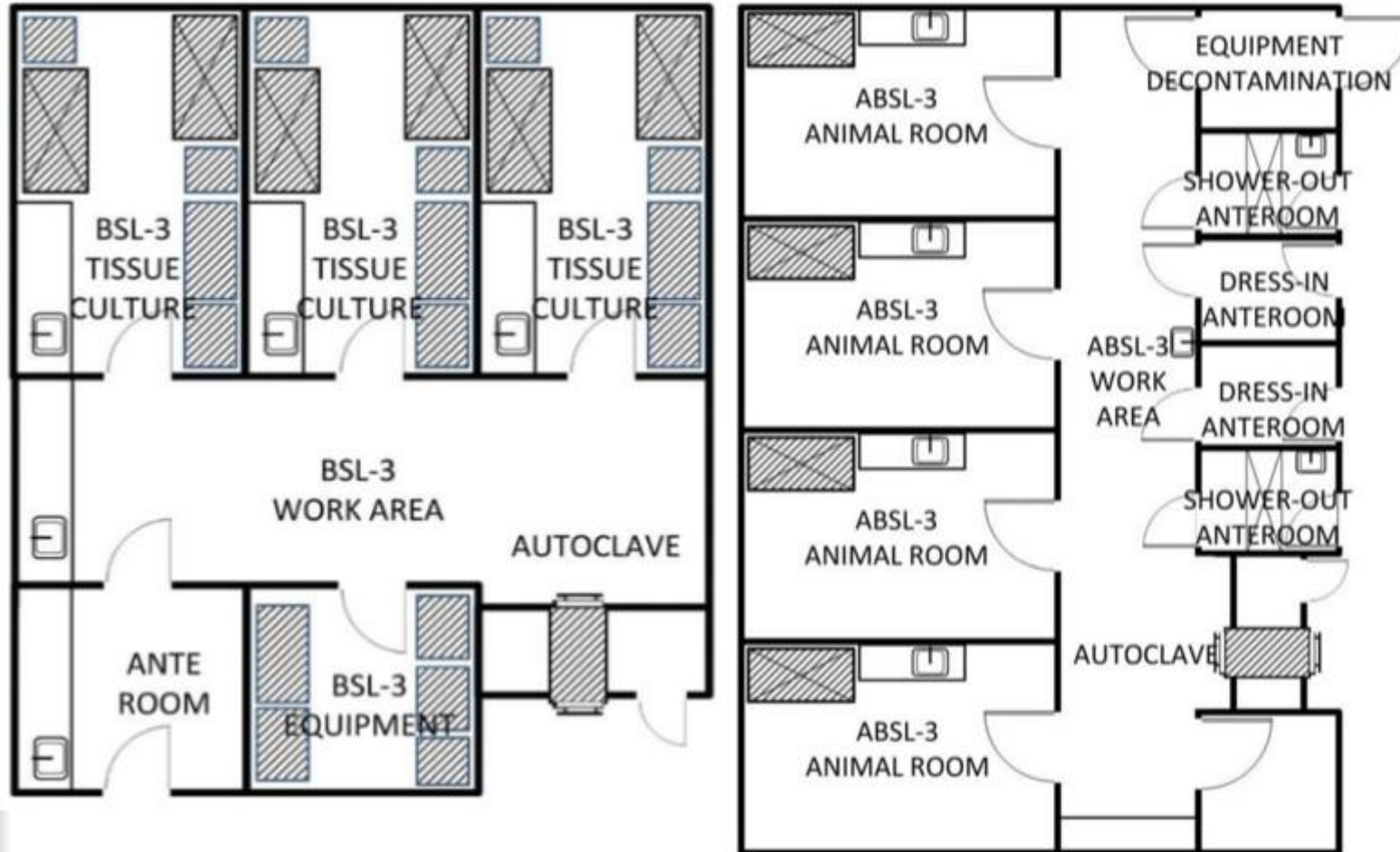


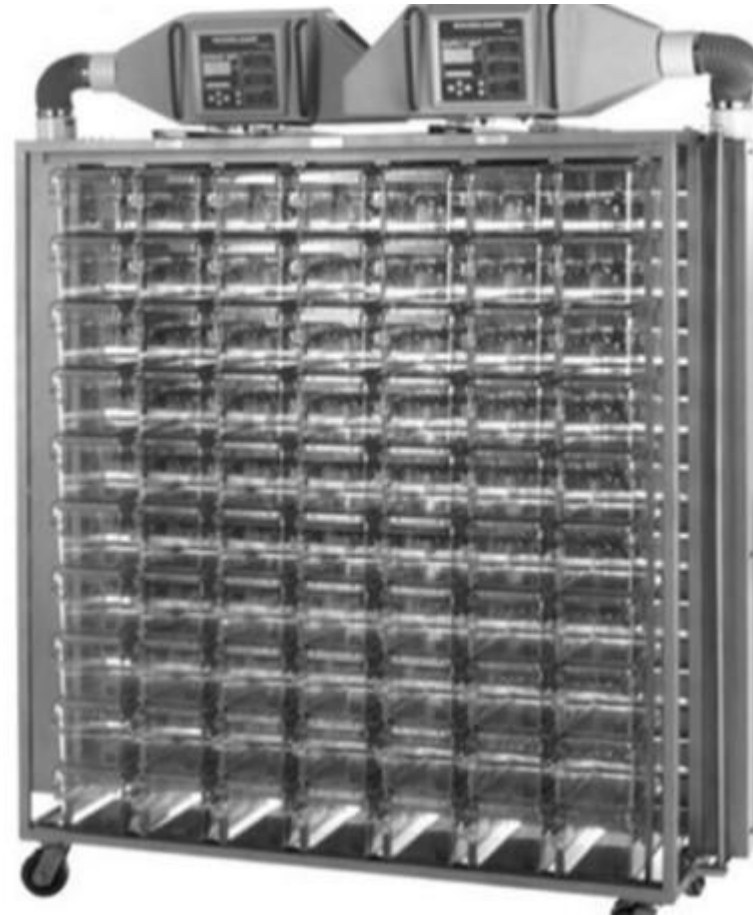
Figure 1: Percentage of building construction cost per new laboratory component.

Schedule or Time Constraints

ABSL-3 Biosafety/Biosecurity



ABSL-3 Biosafety/Biosecurity



LabProducts Housing Solutions in the USA since 1969.

IVC installations pro's & con's

- ❑ General considerations IVC vs. conventional cages
 - ❑ IVC installations offer isolation between individual cages
 - ❑ Animals are exposed to airflow all the time

- ❑ Advantages integrated IVC
 - ❑ Compact all-in rack
 - ❑ Smaller foot print
 - ❑ Better mobility
 - ❑ No risks to damage connecting hoses

- ❑ Disadvantages integrated IVC
 - ❑ Requires ventilation unit per rack
 - ❑ Units need to be removed for cleaning of rack
 - ❑ Risk of vibration and (ultra)sound



IVC installations pro's & con's

❑ Causes of Vibration and Sound in IVC installations

❑ Electric motor

Modern HEPA ventilation units are very quiet (normal sound levels are at least 30dB below the levels created by the airflow. Ultrasound levels are low and are also completely blocked by the filters (physically ultrasounds are blocked by almost every material)

Modern HEPA ventilation units are almost free of vibrations, due to the direct drive motors and bearings. Motor vibration is neglectable and at least 25 dB lower than airflow vibration



IVC installations pro's & con's

❑ Causes of Vibration and Sound in IVC installation

❑ Airflow

Most of the vibrations and sounds are caused by the air bouncing against the materials used in pipes and hoses of the IVC rack. Soft edges can help to reduce the sound

Sound and vibrations are also increased at transitions from wide to narrow and small filter openings



Labproducts - Ventilated Cages and Racks

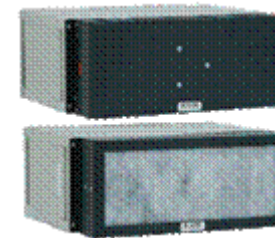
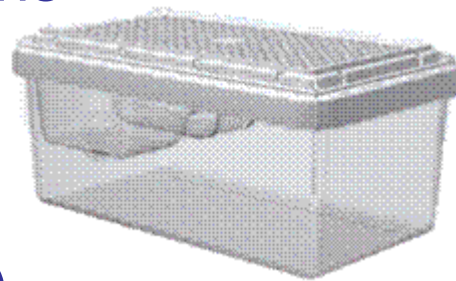
- ABSL- 2 and ABSL- 3,
SPF - IVC racks
HEPA filter



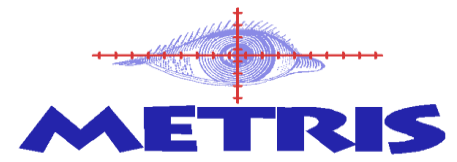
- Ventilated Cages
conforms to EU-regulations



- Cages for rodents
(with foodhopper / bottles)



Ventilated Cages and Racks



AllerZone™

AllerZone™ ... the zone between the cage and the room.

Zone 1, The Cage:

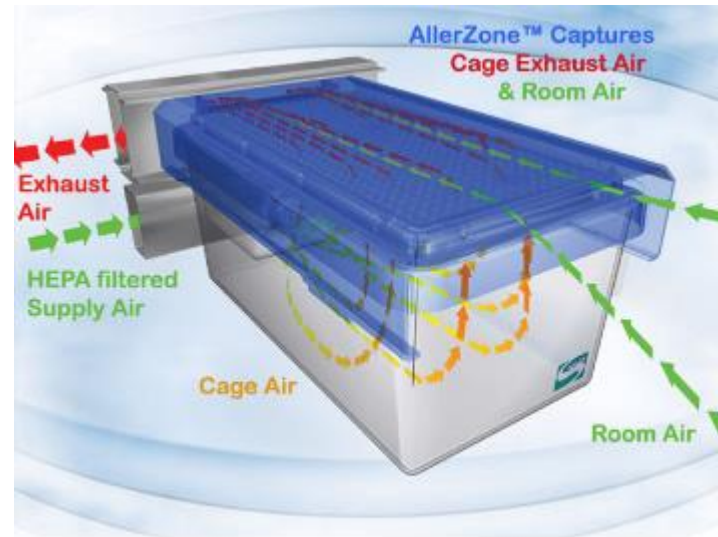
Animal zone. Positive pressure protecting animals with HEPA filtered air.

Zone 2, AllerZone™:

Independent air pressure zone. Keeps allergens and cage particulate from escaping into the room, and prevents room air from entering the cage.

Zone 3, The Room:

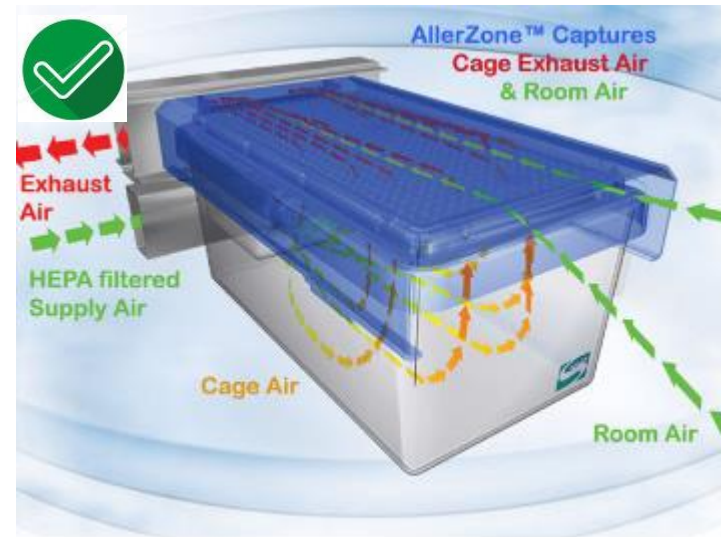
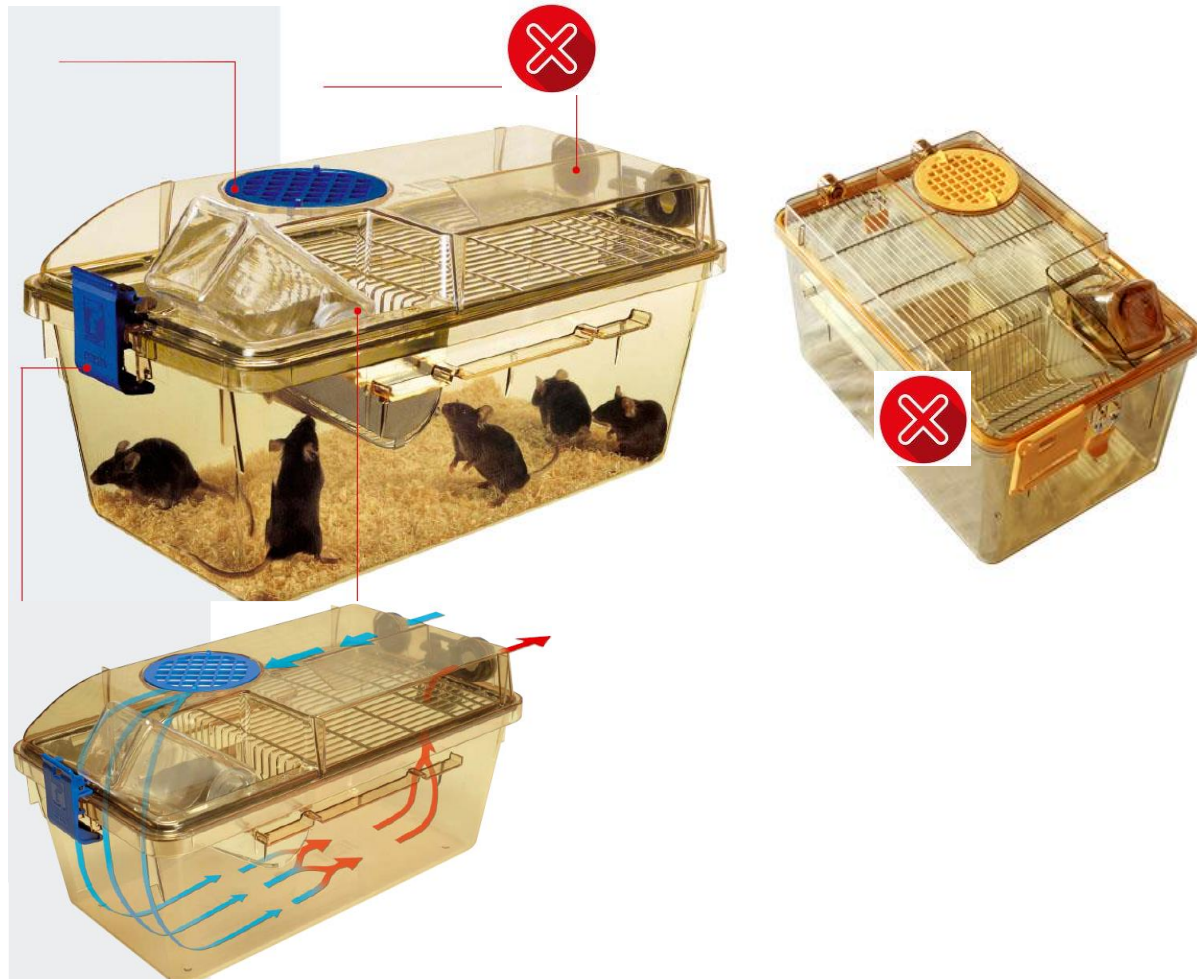
Personnel zone. Reduces exposure to particulate and allergens.



RAIR ISOSYSTEM™



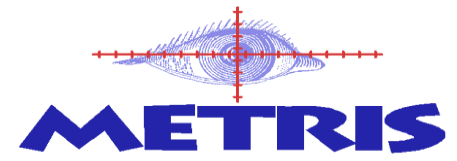
Ventilated Cages



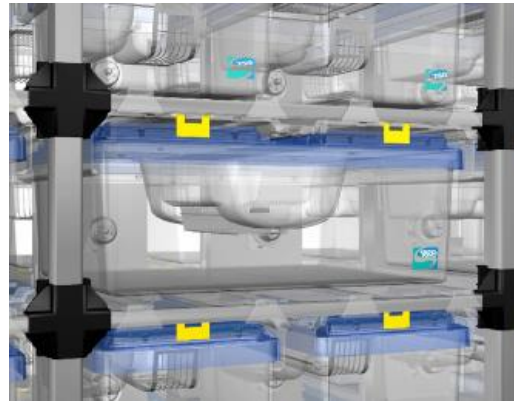
RAIR ISOSYSTEM™



Ventilated Cages and Racks



LabProducts One Cage 2100™ Ventilated Racks & Cages



Ventilated Cages and Racks

Advantages: Labproducts IVC Racks and cages

- ✓ Maximal safety
(Double protection human and animals, 3 zones)
- ✓ Maximal mobility
- ✓ Maximal tolerance
- ✓ Maximal compatibility
- ✓ Maximal durability
- ✓ Maximal Economy and minimum finance and service



Cage Change Stations



Wide Workbench

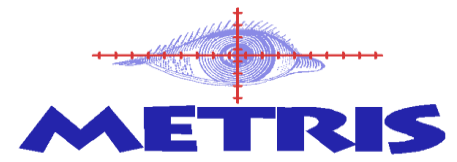


Mini workbench



Workbench with lift

Cage Cleaning and Waste management

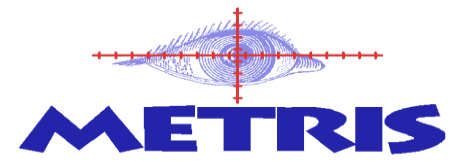


Cage washer



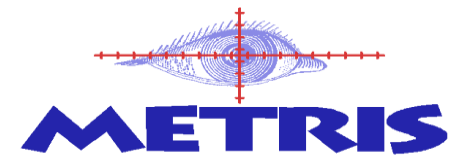
Waste Management

Ventilated Cages and Racks



Autoclave Requirements for ABSL Standards of Quality, Safety and Care			
Containment Level	Pathogen type	Cage Processing Procedure	Autoclave Requirements
ABSL-1	Agents that present minimal potential hazard to personnel and the environment.	<ul style="list-style-type: none"> • Bedding does not need to be autoclaved prior to disposal. • Cages do not need to be autoclaved prior to washing. 	None
ABSL-2	Agents associated with human disease and pose moderate hazards to personnel and the environment.	<ul style="list-style-type: none"> • Cage changes in BSC • Bag and autoclave bedding 	None
ABSL-3	Indigenous or exotic agents, agents that present a potential for aerosol transmission, and agents causing serious or potentially lethal disease.	<ul style="list-style-type: none"> • Bedding and waste autoclaved prior to removal from animal housing area. • PPE autoclaved 	Pass-thru autoclave with Bioseal preferred.
ABSL-4	Dangerous and exotic agents that pose a high individual risk of aerosol-transmitted laboratory infections and life-threatening disease	<ul style="list-style-type: none"> • Bedding and waste autoclaved prior to removal from animal housing area. • PPE autoclaved 	Pass-thru autoclave with Bioseal required in laboratory room.

Hydropac® Alternative Watering System



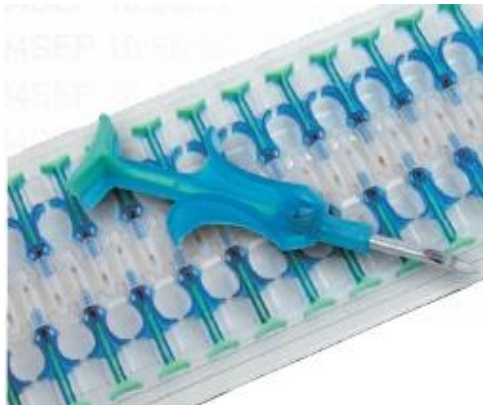
Hydropac® is a unique water pouch and valve system that re-defines lab animal watering. A complete rodent watering solution.



Animal Identification

Animal Identification and Animal Temperature (by BioMedic DataSystems Inc. (BMDS))

Needle

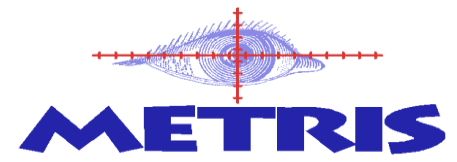


Transponder

Various Readers



Anesthesia system



E-Z Systems®... Leading the Industry into the Future

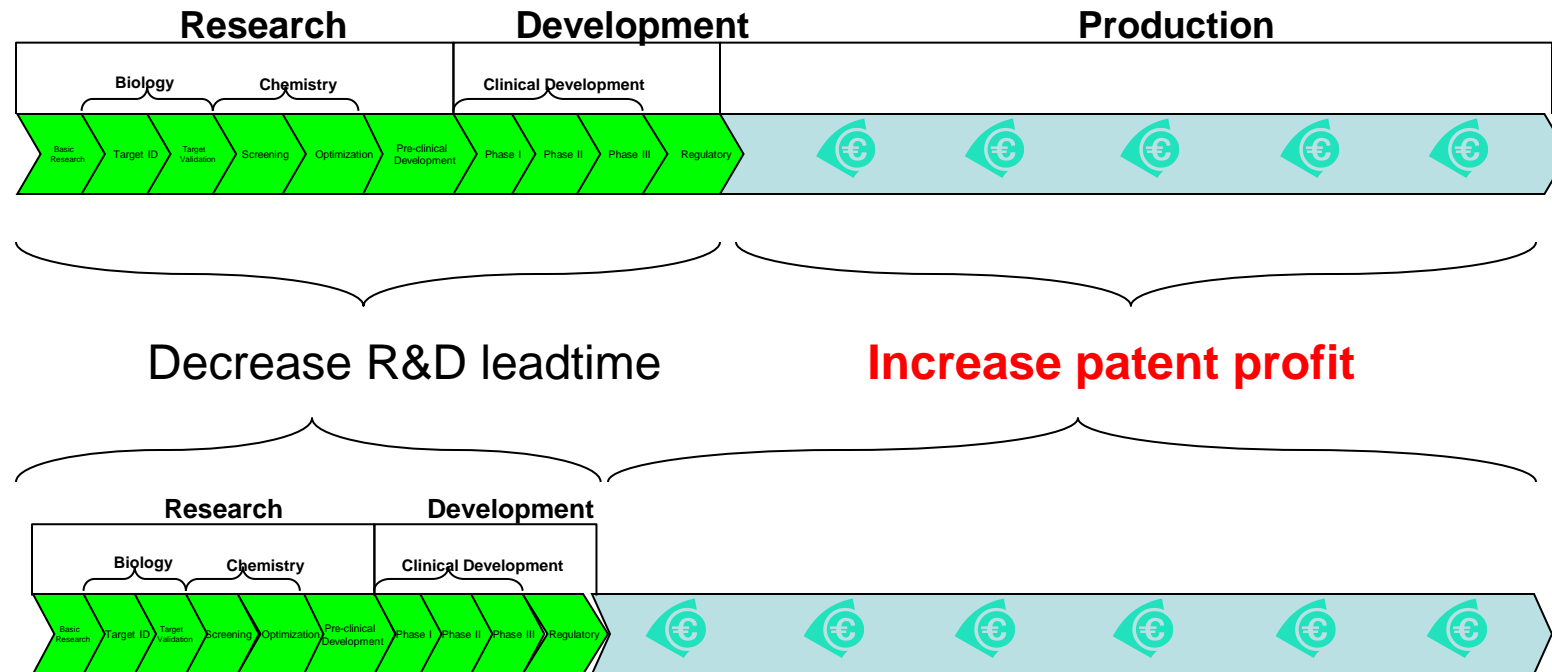


Euthanasia system



CO2 home cage euthanasia system

Pre-clinical research and Effects



ABSL-3 Biosafety/Biosecurity

Keep our doctors and hospital personnel!

Use Specific standard operating procedures (SOP's) for Coronavirus (COVID-19).
Not use wrong mouth masks!

Use Powered Air-Purifying Respirator- PAPR-personal protective equipment for maximal safety against Coronavirus (COVID-19).



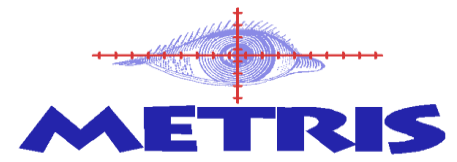
Use Powered Air-Purifying Respirator- PAPR-personal protective equipment



Not use wrong respirator mask

Not use surgery mask

Russia - 2020



Thanks

For more information please contact Metris b.v.

Info@metris.nl



www.metris.nl

Meet Some Of Our Customers

