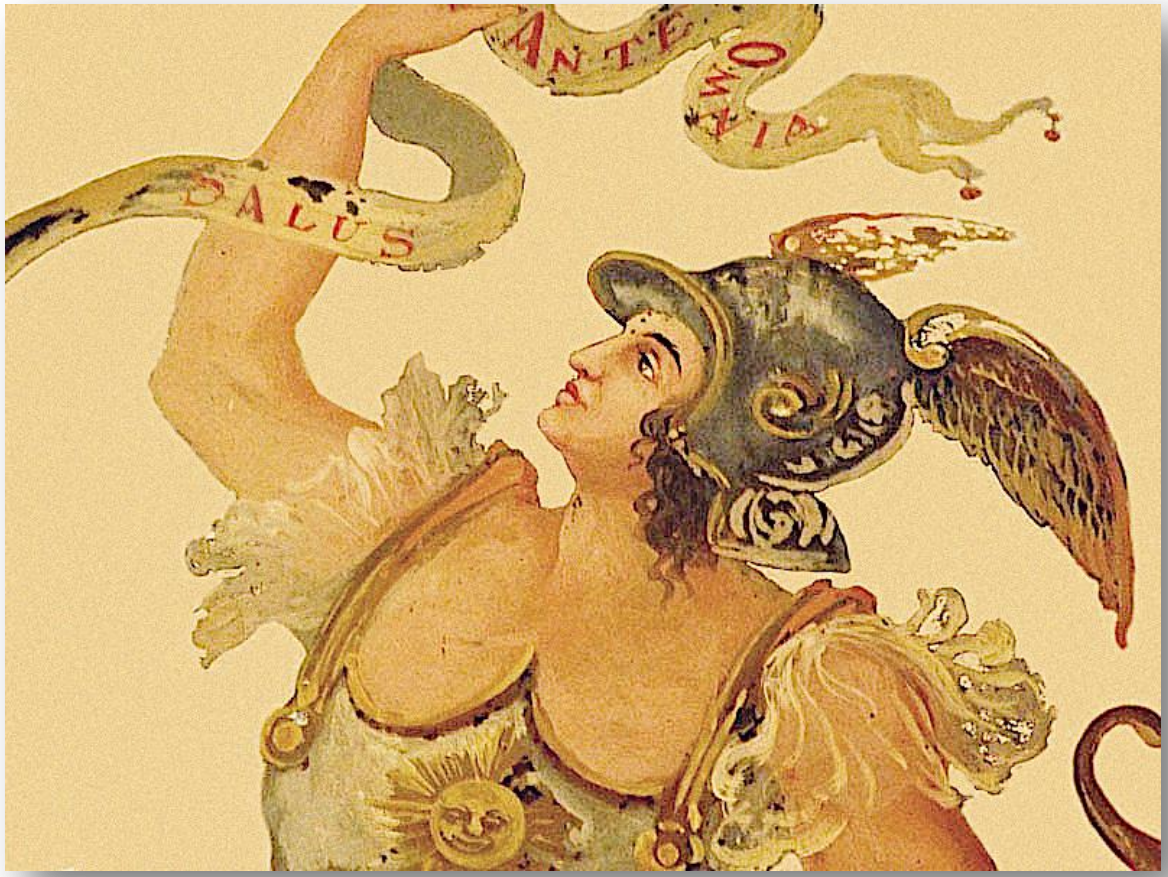
In Vitro Consultancy Unit

April 2020



Salus Ante Omnia
Farmacia Meloni, 1907

VitroScreen
Leading Innovation in Pre-Clinical Testing

In Vitro Consultancy Unit

Since its establishment in 2001, VitroScreen has been committed to the use of Alternatives to animal testing.

Since then, 500+ experimental setting based on 3D human tissue models have been internally developed, putting VitroScreen at the forefront of innovation in pre-clinical safety assessment and efficacy testing.

VitroScreen is GLP certified for *In Vitro* Toxicology since 2010 and a member of EU-NETVAL Laboratory Network since 2014.

Nowadays the identification of Adverse Outcome Pathways (AOP) and the development of Integrated Approaches to Testing and Assessment (IATA) support the concept of Evidence-Based Toxicology to better capture the effects of chemicals, consumer products and the environment on human health.

Consistently with the new safety requirements introduced in many Regulations, an expert and deeper knowledge of the applicability domain of *in vitro* testing approaches is today highly recommended.

VitroScreen is proud to announce the establishment of the ***In vitro* Consultancy Unit** with the mission of providing its Customers with high level *In Vitro* Testing Strategies for Hazard and Risk Assessment, coupled with an independent pharmaco-toxicological expertise judgment.

The Consultancy Unit's deliverables focus on a more accurate, more ethical and sustainable classification and safety assessment of chemicals (including mixtures and polymers), agrochemicals and pesticides, recycled materials, cosmetics, pharmaceuticals and medical devices.

The Consultancy Unit avails the partnership with **ToxHub,** to support Medical Device industries facing the new MDR and in particular to comply with Rule 21, and **SenzaGen**, to address skin and respiratory sensitization potential by the high predictive and accurate GARD technology.

Regulatory toxicology in GLP

OECD AREA	END-POINT	TEST METHOD	TEST GUIDELINE
2. Toxicity studies	Phototoxicity	*In vitro* 3T3 NRU phototoxicity test	OECD TG 432
	Skin corrosion	*In vitro* skin corrosion: Episkin/RHE	OECD TG 431
	Skin irritation	*In vitro* skin irritation: Episkin /RHE/EpiDerm	OECD TG 439
	Skin sensitization	Modified human-cell line activation test	OECD TG 442E (modified protocol)
		KeratinoSens™	OECD TG 442D
		EpiCS® in vitro skin sensitization test	Cell System Protocol 09/2015
	Eye irritation/serious eye damage	Eye Irritation Test (EIT) on HCE SkinEthic™ and EpiOcular™	OECD TG 492
3.7 Biocompatibility studies	Irritation and cytotoxicity	MEDICAL DEVICE: Class IIa, IIb and III on 3D reconstructed human tissues as epidermis, epithelia as oral, gingival, vaginal, corneal, bladder, rectal, oesophageal, intestine, upper airway	ISO 10993-1(2018) ISO 10993-23 (*draft* 2018)
3.9 Pharmacokinetics Toxicokinetics and ADME studies	Percutaneous and epithelial penetration, distribution and passage	*In vitro* method for skin absorption on skin explants and 3D human skin models. 3D reconstructed epithelia as oral, gingival, vaginal, corneal, bladder, rectal, oesophageal, intestine, upper airway (to comply with Rule 21 of MDR 2017/745).	OECD TG 428 Customized protocols according to OECD TG 428 principles

VitroScreen and ToxHub Partnership for Medical Devices compliance to MDR 745

- Biological Evaluation Plan and Design input within a risk management process in accordance with ISO 14971:2007 and Gap analysis to ISO standards.
- MD Raw Materials toxicological characterization and safety assessment according to EN ISO 10993-1:2018 following the process of an in-depth literature review as indicated in Annex C.
- Risk assessment on absorption, penetration and local distribution of devices composed of substances or of combinations of substances, that are intended to be introduced into the human body via a body orifice or applied to the skin as required by Rule 21 of MDR 2017/745.
- Toxicological expertise on the results of in vitro percutaneous absorption studies (OECD TG 428 and EFSA 2017 guidelines).Assessment of systemic exposure for the identified use and calculation of safety margins.
- Toxicological risk assessment of residual impurities from the manufacturing process (ISO 10993-18), degradation products (ISO 10993-13/14/15) and substances extracted and/or released by the primary packaging in the MD (ISO 10993-17) including polymers (plastic/silicon), solvents, elemental and genotoxic impurities and definition of their safety limits.
- Biocompatibility Test Plan strategy development following 3R principles thus avoiding animal testing using Alternatives, and in silico prediction.
- Interpretation of results obtained in biocompatibility and overall biological safety in accordance with EN ISO 10993-1:2009 and subsequent amendments.

TOXHUB
Tailored Toxicology Solutions

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VitroScreen and SenzaGen Partnership

Since December 2019, VitroScreen is a non-exclusive distributor of SenzaGen's GARD test platform which includes highly versatile genomic-based *in vitro* tests:

GARD™ skin, **GARD™ potency**, **GARD™ air** and **GARD™ skin Medical Device** (on extracts).

GARD™ test methods are recognized for accuracy, high sensitivity and specificity to support:

- product development
- quality control after product/production changes
- REACH registration
- potency classification according to CLP Regulation

GARD™skin and GARD™potency are under EURL ECVAM validation and included in the OECD Test Guideline Program (TGP 4.106). The results of both tests can already be used in REACH dossiers in a weight of evidence approach to meet data requirements under REACH.

Thanks to the partnership established with SenzaGen, VitroScreen aims to further contribute to a sustainable and ethical development of pre-clinical testing including innovative and robust genomic approaches as GARD.

In particular, the GARD™air is the only *in vitro* test available for the identification of respiratory allergens and can highly support research on environmental toxicology.

SENZA GEN

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