



Investor Conference Naples
Banca Profilo

June 27th, 2024

TOPICS



- ARTERRA AT GLANCE



- MARKET CONSOLIDATION & DIVERSIFICATION

- FINANCIALS





People Speaking Today



M. GABRIELLA COLUCCI
Founder, President and CEO

GUALTIERO IOIMO
CFO and Investor Relations Manager

Arterra Bioscience – Innovative SME

Arterra Bioscience

Is a **biotech company** listed on the “**Euronext Growth Milan**” market of Borsa Italiana since **2019**, founded in Naples by M. Gabriella Colucci in 2004 with the aim of developing technologies and innovative solutions that find application in various industrial sectors.

Arterra is a company strongly linked to the **Campania region** from which it derives the natural raw materials underlying many of its actives, as well as being able to take advantage of the ideas and enthusiasm of its **young researchers**.

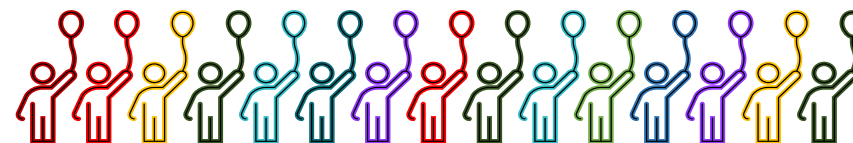
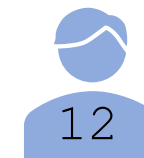


ARTERRA ORGANIZATION

Arterra & Vitalab Team



2000 Sqm



PhD	13
Chem Ing	1
MSc	11
Tech	15
PhD Student	3

Our facilities



Chemistry Lab
Plant Cell Culture Lab
Microbiology Lab
Molecular & Cell Biol Lab
Histology & Microscopy Lab
Production Lab

Scientific Management team



M. GABRIELLA COLUCCI
CEO

VINCENZO FOGLIANO
CSO

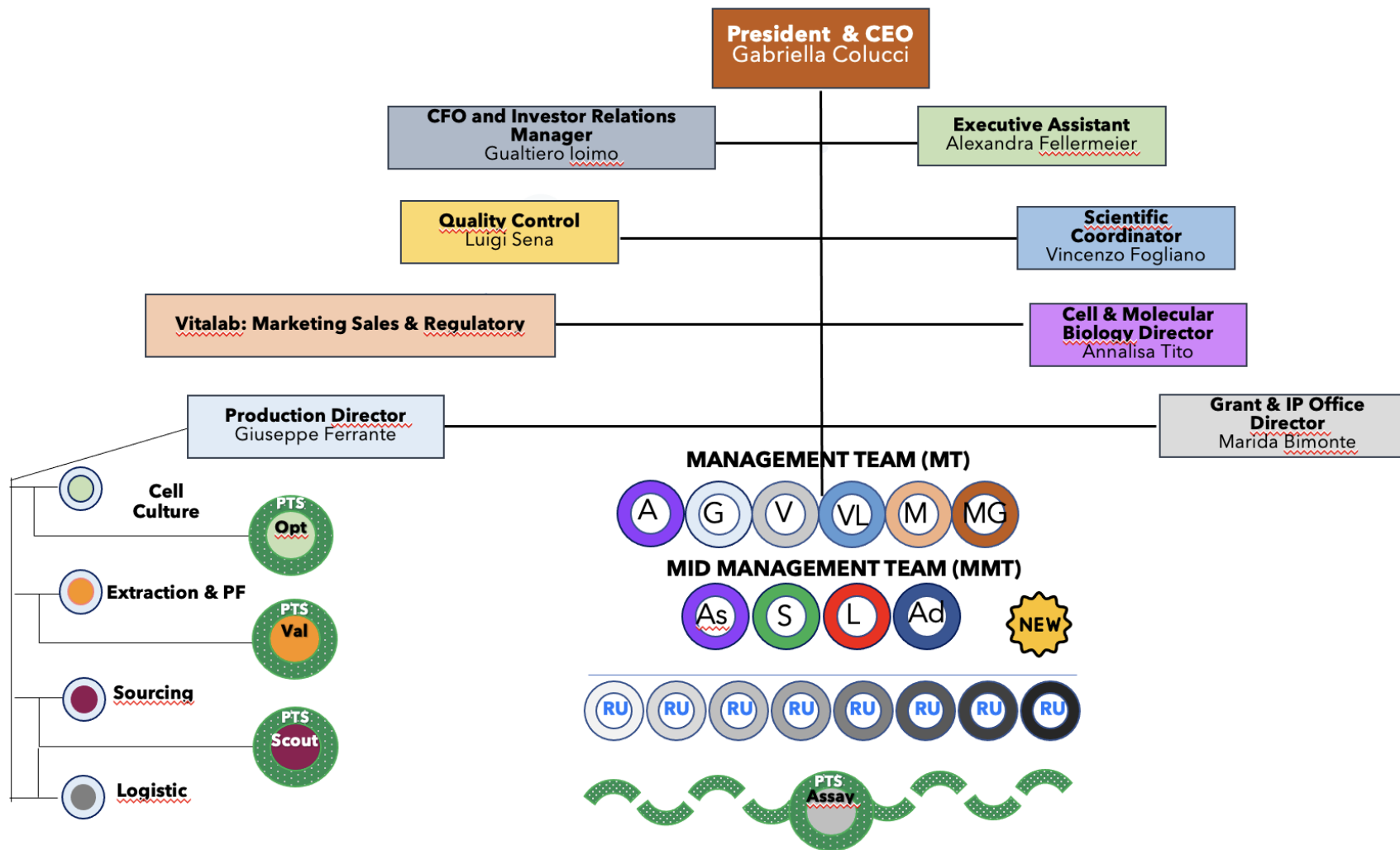
GIUSEPPE FERRANTE
COO

MARIDA BIMONTE
Grant & IP
Director

ANNALISA TITO
Cell & Mol Biol. Director

MAURA ANGELILLO
Marketing & Sales
Manager

Company organization





Certifications



Azienda certificata
da ClimatePartner
climate-id.com/RUPASF



Arterra position in relevant markets



Consumer cosmetics

Skin Care, Make-Up, Personal Care & Hair Care consolidated market through Intercos & Vitalab.



Food supplement for pathology related disorders

Robust discovery platform & extensive natural extracts collection.



Crop Protection

Validated Platform for crop protection related natural compounds discovery



Beauty Cosmetics

Professional Cosmetic Products for topical applications in Aesthetic Medicine
New segment of a known market

Medical Device for topical and injectable products
New market, working on it



Agrifood

Consolidated knowhow in up-cycling processes.
Mango SuperPurea - First EcoCert Certified SuperPurea on the Market (Montecarlo Fruit)

Innovation in COSMETICS

CONSOLIDATED SEGMENT: SKIN CARE & MAKE-UP & HAIRCARE 2023/2024



Tortora A, *et All.* Jasminum Sambac as natural antioxidant booster against skin aging. **International Journal of Cosmetic Science**, 45: 1-61 (2023).

Tito A, *et All.* Oenothera biennis cell culture produce lignans activating Piezo1 triggering the Myosin Light Chain Kinase depending pathways. **Biochemical and Biophysical Research Communications**, Volume 681, 2023, Pages 36-40, ISSN 0006-291X.

Zappelli C, *et All.* Scalp soothing properties of Portulaca oleracea. **Personal Care Magazine**, January 2023.

Tito A, *et All.* Identification of a novel rejuvenation marker for the hair follicle ecosystem. **33rd IFSCC Congress, Barcelona**, 4-7 September 2023.

Gogliettino M. *et All.* A new versatile peroxidase with extremophilic traits over-produced in MicroTom cell cultures. **Scientific Reports**, Volume 13, Article number: 15338 (2023).



102023000017877. Uso di estratti di origine vegetale per la stimolazione della crescita dei capelli e composizioni cosmetiche o farmaceutiche contenenti tali estratti. A. Tortora, D. Falanga, A. Tito.

102023000028383. Ceppi di lattobacilli isolati da latte di bufala crudo e da formaggio pecorino sardo D.O.P. e processo per la produzione di molecole biologiche tramite l'utilizzo di detti ceppi di lattobacilli. S. Iacopino, M. Parziale, I. Arra, F. De Filippis, D. Ercolini, M.G. Colucci.

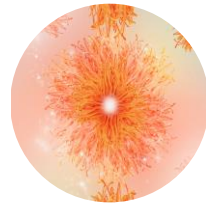
Innovation in COSMETICS



7 New products on the market



Vita Gly-Jasmine
Jasminum Sambac
Plant cell extract



Cordys Revitagen
Cordyceps sinensis
extract



Vita D-Light
Corthellus shiitake
extract



Vita RisePeptides
Hydrolyzed *Rice Bran*
Extract



Vita PeptiBloom
Peonia suffructicosa
plant cell cultures



Vita NiaCeraMine
Hyssopus Officinalis
plant cell cultures



PlantExo Vita
Exosome-based active
ingredient from *Plantago*
lanceolata plant cell
cultures

Regulatory Achievements

China State Council released the final version of CSAR on 01 January 2021 and replaced the existing Cosmetics Hygiene Supervision Regulations

China's new cosmetics regulation include many changes:

- 🧬 New cosmetic definitions, scope and classifications
- 🧬 Management of new cosmetic ingredients
- 🧬 Addition of efficacy claims requirements
- 🧬 Safety assessments for cosmetic products and requirements for safety assessors



All Portfolio of active ingredients
are now CSAR-compliant.



Innovation in COSMETICS started in 2023

Powder active ingredients for make-up application
Recombinant peptides using molecular farming technology*
Post-Biotics using precision fermentation Technology
Extracellular Vesicles EV
Delivery Systems* <i>In Progress</i>
*MISE Grant <i>In Progress</i>

On the market in 2024

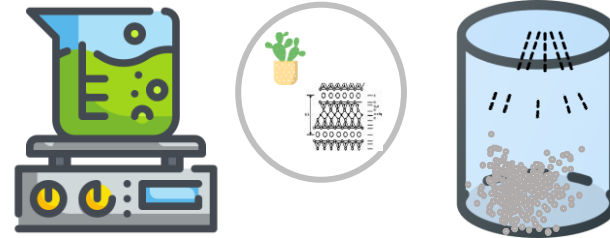
On the market in 2025



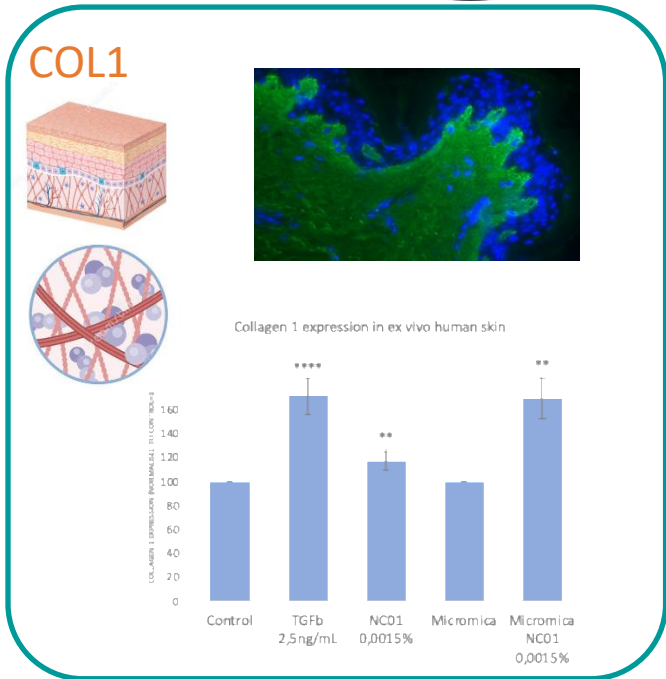
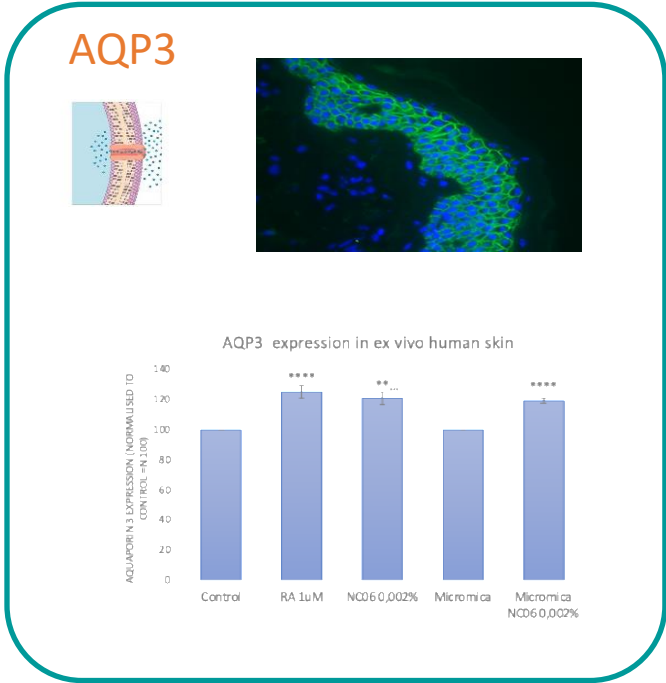
Powder active ingredients for make-up

Regulatory documentation in preparation. | September 2024 ready for the market.

Loading of MICA with Active Ingredients



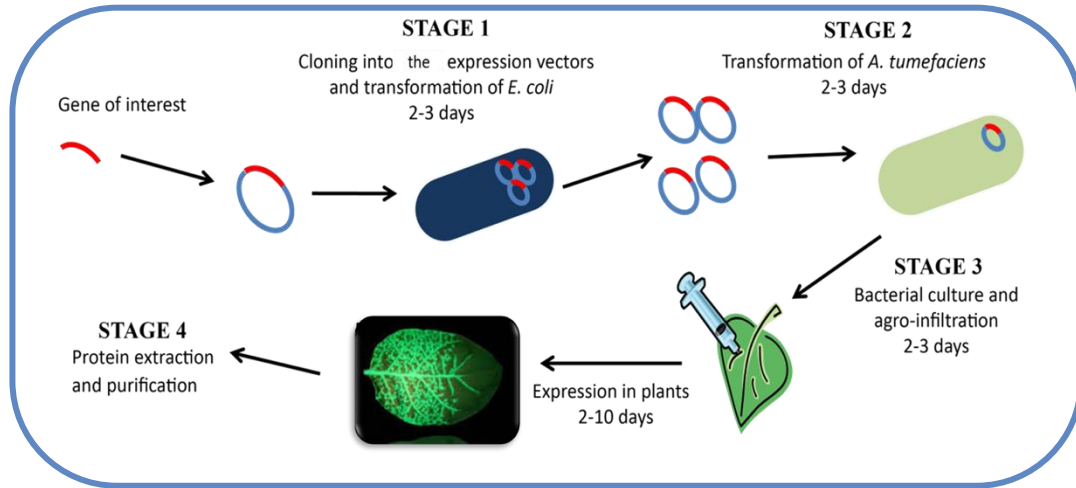
On the market in 2024



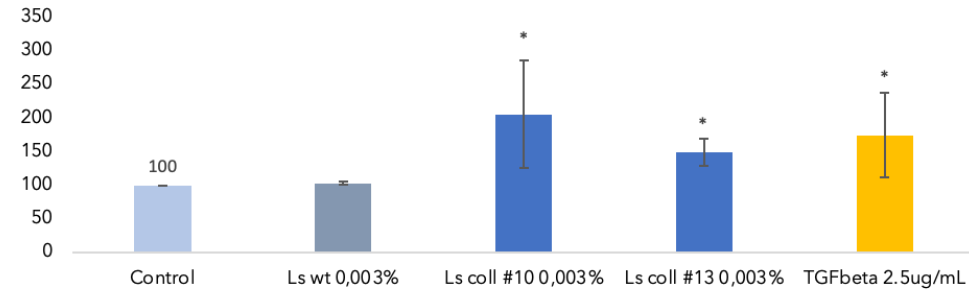
Consumer cosmetics



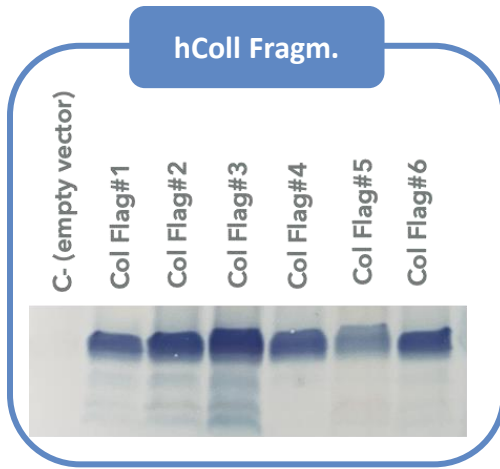
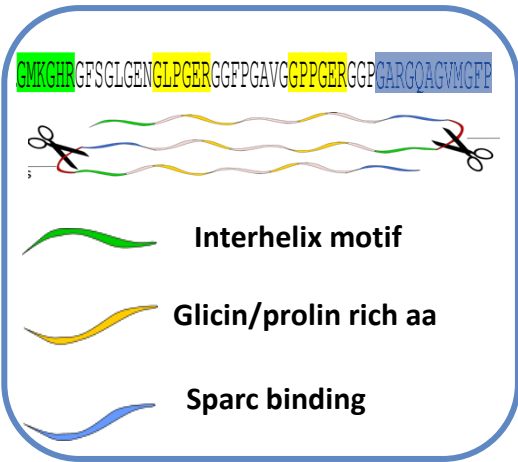
Molecular Pharming Technology: Vegan Collagen



On the market in 2024



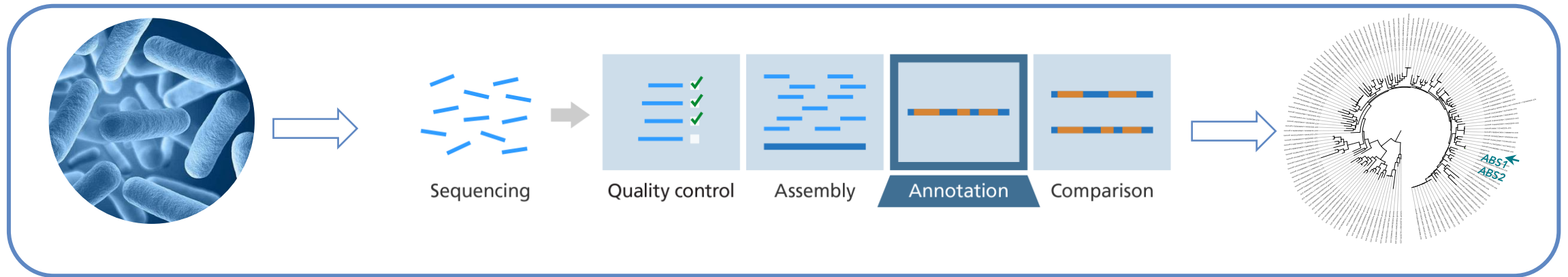
- Obtained INCI
- Regulatory documentation in preparation
- Ready for the market within 2024



Consumer cosmetics

Beauty Cosmetics MD

Precision Fermentation Technology



3 NEW PROPRIETARY STRAINS

Lactobacillus fermentum: LfABS1

Lactobacillus fermentum: LfABS2

Lactobacillus paracasei: LcABS3

PATENT ON GENETIC ELEMENTS for Recombinant
Proteins, Peptides and dsRNA in
Lattobacillus Sp.

FERMENTED ACTIVE
INGREDIENTS

BOOSTED
POST BIOTICS

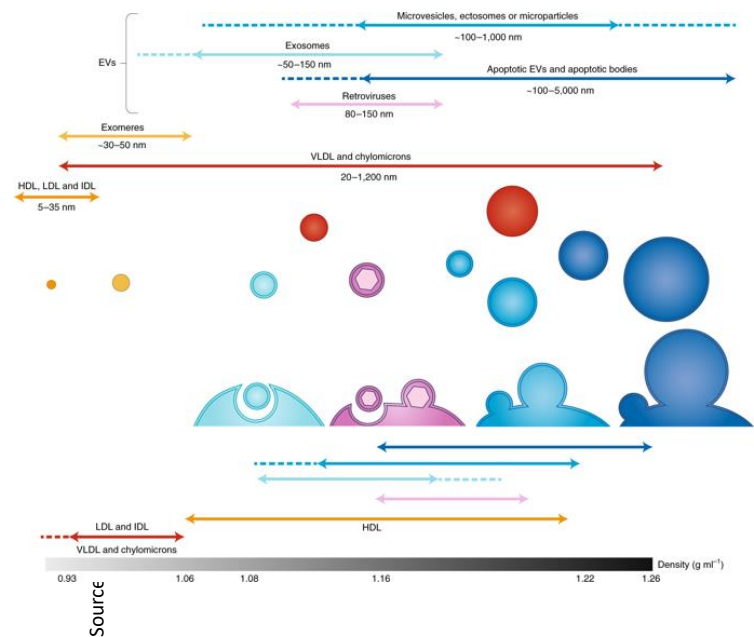
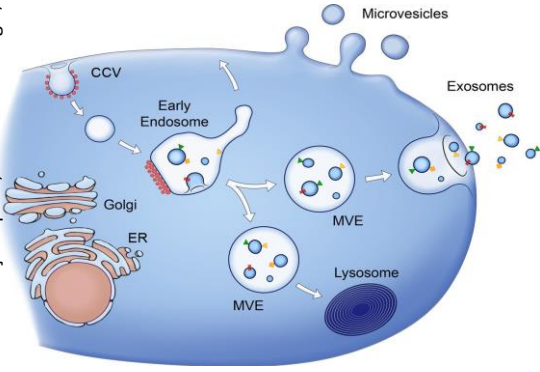
PRECISION
FERMENTATION

METABOLIC
ENGINEERING



EXOSOMES: The new wave «Opportunity»

Source: Graça Raposo, Willem Stoorvogel, JCB Feb 18, 2013



On the market in 2025

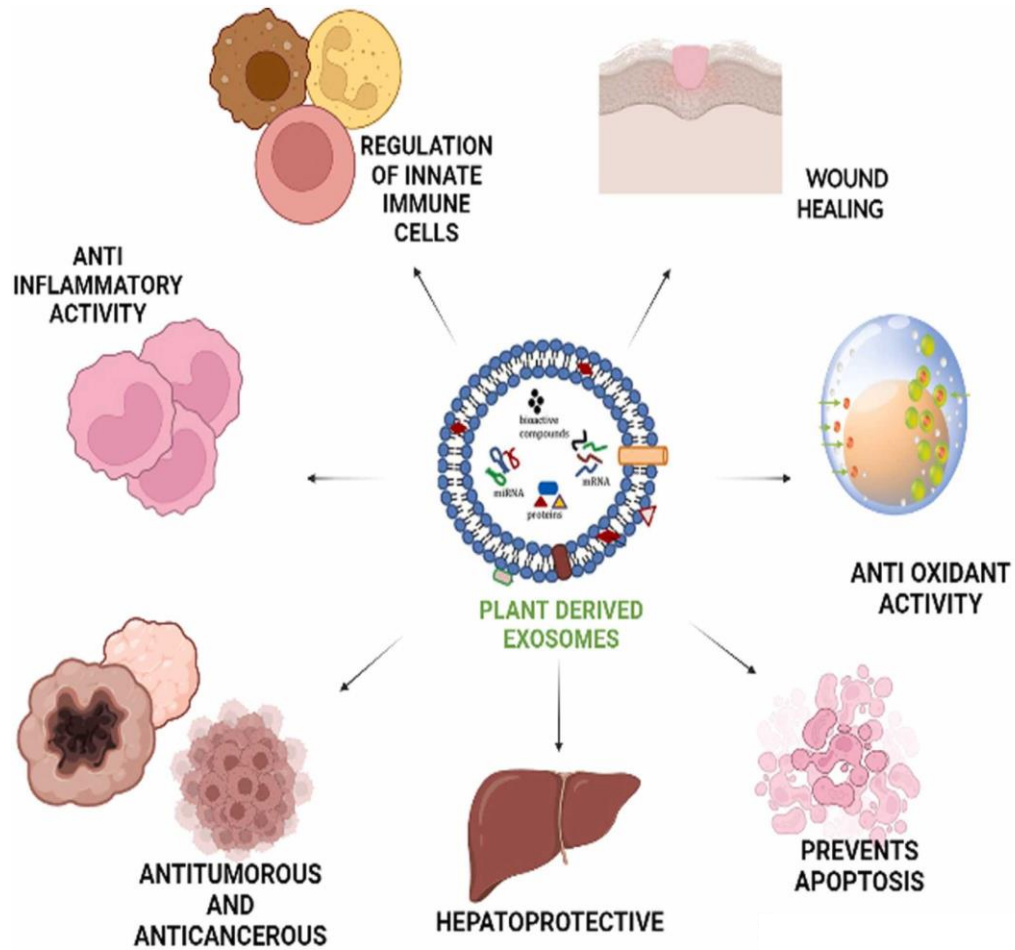
Exosomes and EVs are extracellular vesicles released by all cells (eukaryotic or prokaryotic) having a number of complex biological functions.

- They are surrounded by a lipidic membrane protecting their cargo from degradation.
- They have a nanoscale dimension.
- They contain lipids, proteins, DNA and RNA, including cytokines, enzymes, growth factors, antimicrobial, antioxidants and other bioactive molecules.
- They have a fundamental importance in intercellular and cross domain communication in both animals and plants.

Consumer cosmetics

Beauty Cosmetics MD

Plant exosomes: Claimed properties



SL NO	SOURCE	THERAPEUTIC POTENTIAL	ISOLATION METHOD	SIZE OF EXOSOME	INVITRO/INVIVO STUDIES	REFERENCE
1	Apple	Anti-inflammatory activity	Ultracentrifugation	157 nm (radius)	Cancer cell line, fibroblasts and macrophages	(Trentini et al. 2022)
2	Grapes	Anti-inflammatory activity	Sucrose gradient centrifugation	380.5 ± 37.37 nm (diameter)	Animal model (mouse)	(Ju et al. 2013)
3	Cabbage	Anti-inflammatory activity and inhibition of apoptosis	Ultracentrifugation and PEG based precipitation	148.2 nm, 134.2 nm, 98.8 nm	human and mouse cell line	(You et al. 2021)
4	Strawberry	Anti-oxidant	Ultracentrifugation	30-191 nm	Human mesenchymal stromal cells	(Perut et al. 2021)
5	Grapefruit	Wound healing	PEG based precipitation	30-100 nm	HaCaT cells (aneuploid immortal keratinocyte cell line)	(Savo et al. 2021)
6	Grapefruit	Anti-oxidative, Anti-inflammatory and anti-cancerous	Differential ultracentrifugation	50-80 nm	A375 Human melanoma cell line	(Stanly et al. 2020)
7	Aloe vera	Antioxidant effect for wound healing	Ultracentrifugation and tangential flow filtration	50-200 nm (diameter)	Human keratinocytes and fibroblasts	(Kim et al. 2020b)
8	Citrus limon	Anti-cancerous	Ultracentrifugation	50-70 nm	Human carcinoma cell line and chronic myeloid leukemia cell line	(Raimondo et al. 2015)
9	Citrus limon	Antioxidant effect	Differential centrifugation			(Baldini et al. 2018)
10	Lemon	Anti-cancerous effect	Ultracentrifugation, electrophoresis was combined with dialysis	450 nm	The human gastric cancer cell line SGC-7901 and animal model (tumour bearing mice)	(Yang et al. 2020b)
11	Ginger (Rhizome)	NLRP3 Inflammasome inhibition	Sucrose gradient centrifugation	120-150 nm (diameter)	Mice Bone marrow-derived macrophages	(Chen et al. 2019)
12	Ginger	Antioxidant and hepatoprotective against alcohol induced liver damage	Sucrose gradient centrifugation	102.3-998.3 nm (Diameter)	Animal model (mouse)	(Zhuang et al. 2015)
13	Ginger	Anti-inflammatory activity	Centrifugation	200 nm	Animal model (mice)	(Mu et al. 2014)
14	Ginger	Anti-inflammatory property	Sucrose gradient ultracentrifugation	220-290 nm	Animal model (mice)	(Zhang et al. 2016a)
15	Blueberry	Anti-oxidant	PEG based centrifugation	189.62 nm (Diameter)	Animal model (mouse)	(Zhao et al. 2022)
16	Blueberry	Antitumour activity	Ultracentrifugation	114 ± 36 nm	Human stabilized endothelial EA.hy926 cell line	(De Robertis et al. 2020)
17	Broccoli	Anti-inflammatory effect	sequential centrifugation method	32.4 nm	Animal model (Mice with colitis)	(Deng et al. 2017)
18	Wheat	Wound healing activity	Exo-spin™ Exosome Purification Kit	40-100 nm	human dermal fibroblast cell line (HDF)	(Şahin et al. 2019)
19	Bitter melon	Antitumour and induce OSCC cell apoptosis	Centrifugation, electrophoresis and dialysis based method	100-300 nm	Animal model (mice)	(Yang et al. 2021)
20	Momordica charantia (Bitter melon)	Anti-oxidant activity	Density gradient centrifugation	106.0 nm	Rat cardiomyocyte cell line (H9C2)	(Cui et al. 2022)
21	Ginseng	Antitumour activity	Sucrose gradient centrifugation	344.8 nm	Murine melanoma skin cell line	(Cao et al. 2019)
22	Garlic chive	Anti NLRP3 inflammasome activity	Ultracentrifugation	113-153 nm	Bone marrow cell line of mice	(Liu et al. 2021a)
23	Tea flowers	Anti-cancerous (breast cancer)	Sucrose gradient ultracentrifugation	131 nm	Lung metastasis mice model	(Chen et al. 2022b)
24	Petasites japonicus	Immunostimulatory potential	Filtration and differential centrifugation	100-140 nm	Animal model (mice)	(Han et al. 2021)
25	Fingerroot <i>Boesenbergia rotunda</i> (L.)	Anticancer activity	Centrifugation	71.1 ± 1.4-106.7 ± 2.4 nm	Colorectal cancer (HT-29 and HCT116) and normal human colon epithelial (CCD 841 CoN) cell lines	(Wongkaewkhiaw et al. 2022)
25	Carrot	Anti-oxidant activity	Ultracentrifugation	143.9 nm	H9C2 embryonic rat heart-derived cardiomyoblasts and human neuroblastoma SH-SY5Y cells	(Kim and Rhee, 2021)
26	Garlic	Anti-inflammatory activity (brain) and anti-obesity	Sequential centrifugation		Animal model (mice)	(Sundaram et al. 2022)
27	Garlic	Anti-cancerous	Centrifugation and PEG based precipitation	50-150 nm	Human kidney carcinoma cell line A498, Human lung carcinoma cell line A549	(Özkan et al. 2021)
28	Garlic	Anti-inflammatory	Centrifugation	70-200 nm	Human cell line (HepG2 cell line)	(Song et al. 2020)

Source:

D. Subha, K. Harshni, K.G. Madhikiruba, M. Nandhini, K.S. Tamilselvi: Plant derived exosome-like Nanovesicles: an updated overview.

Plant Nano Biology 3 (2023) 100022. <https://doi.org/10.1016/j.plana.2022.100022>



Exosomes in professional beauty treatments today

Wound healing

- Reduced expression of IL-1 β 、IL-6、TNF- α
- Increase collagen expression



Hair regrowth

- Promote the proliferation of DPCs



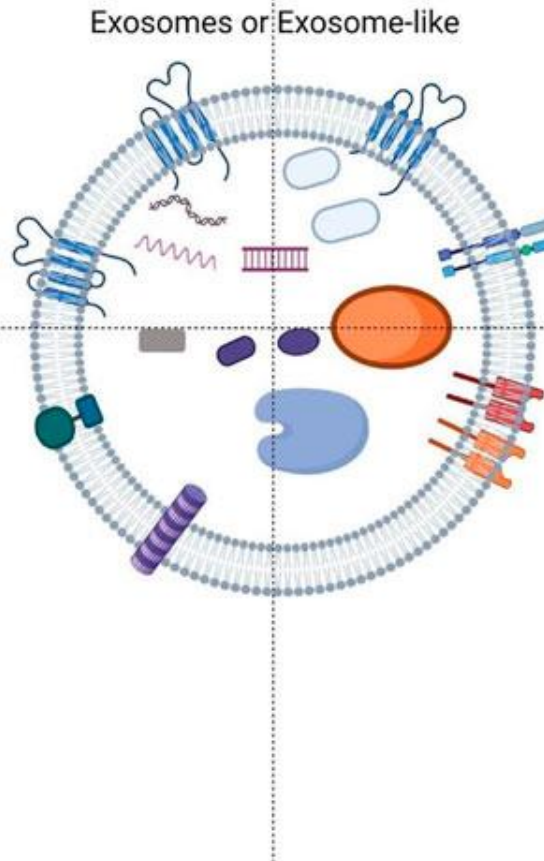
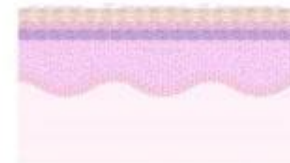
Anti-aging

- Inhibition of (SA- β -Gal) synthesis
- Increase the synthesis of NAD $^{+}$
- Decreased expression of MMPs



Hyperpigmentation

- Inhibits the formation of melanin



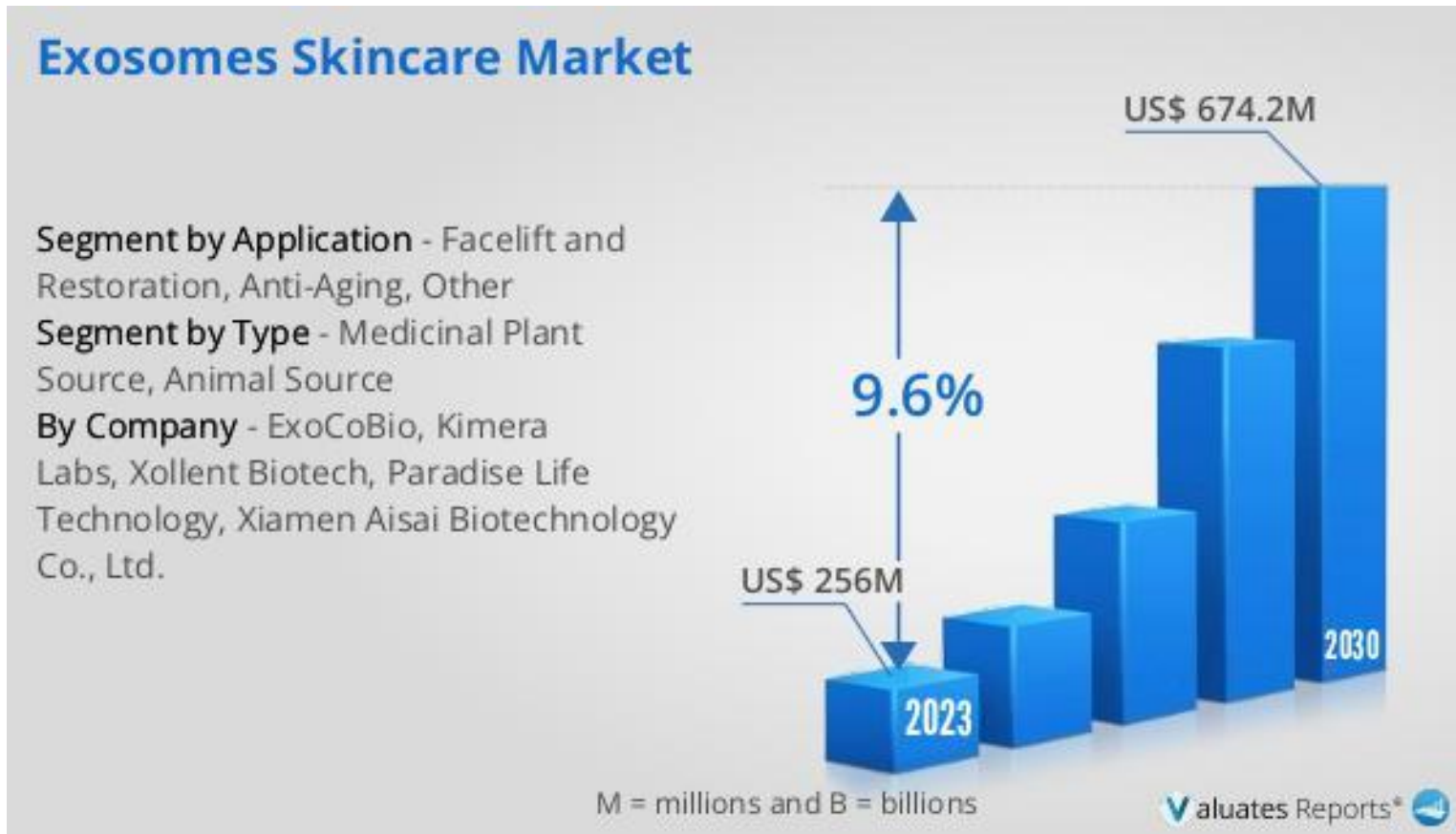


Global Medicinal Aesthetics Market



Sources: American Society of Plastic Surgeons; American Med Spa Association; Clarivate; BCG proprietary provider survey; BCG analysis.

Global Market for Exosomes in skin care



probably largely underestimated



Plant source

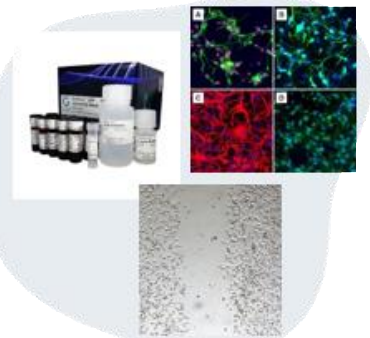
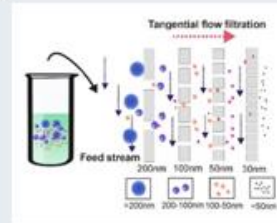
Preclearing & Centrifugation

Ultrafiltration & Concentration

Lyophilization

NTA and Nano Analyzers

Functional assays



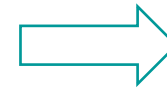


Supplement for pathology related disorders

MEDICAL DEVICE & NUTRACEUTICAL

ACNE CONTROL





COMMERCIALIZED BY



ATOPIC DERMATITIS

102021000020309. Estratti derivati da olive e pale di fico d'India per l'uso nella prevenzione e nel trattamento della dermatite atopica.





CLINICAL STUDY IN PROGRESS



Under evaluation of a big Pharma for potential exclusive licence

IRRITABLE BOWEL SYNDROME (IBS)

Validation of natural product - Co-development

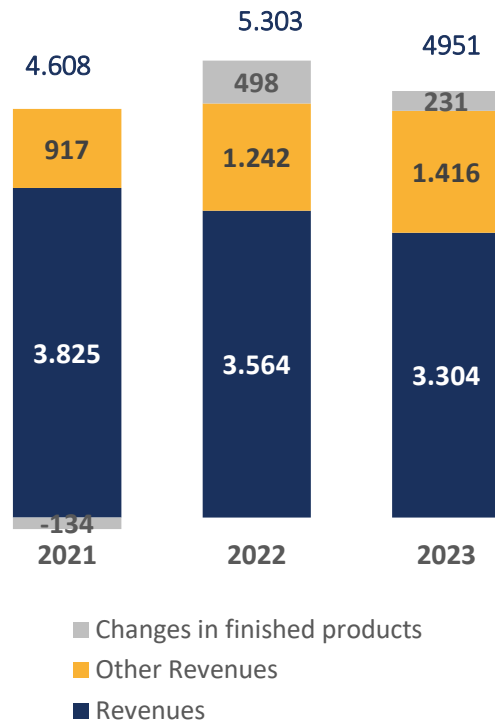




CLINICAL STUDY TO BE STARTED

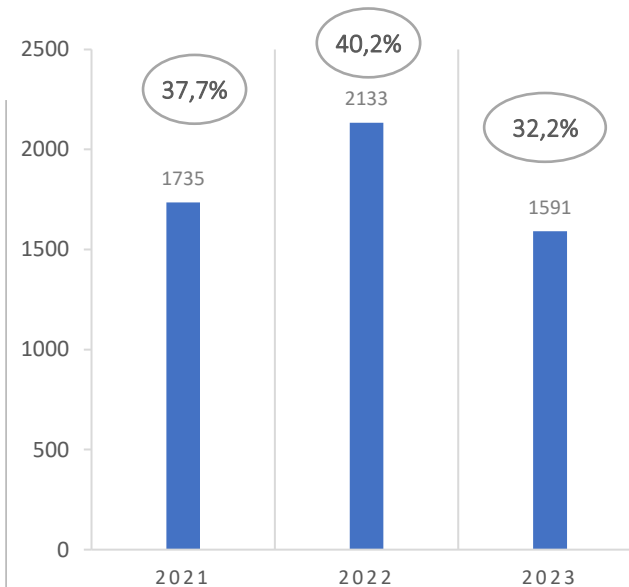
FINANCIALS

Economic results as of December 31, 2023

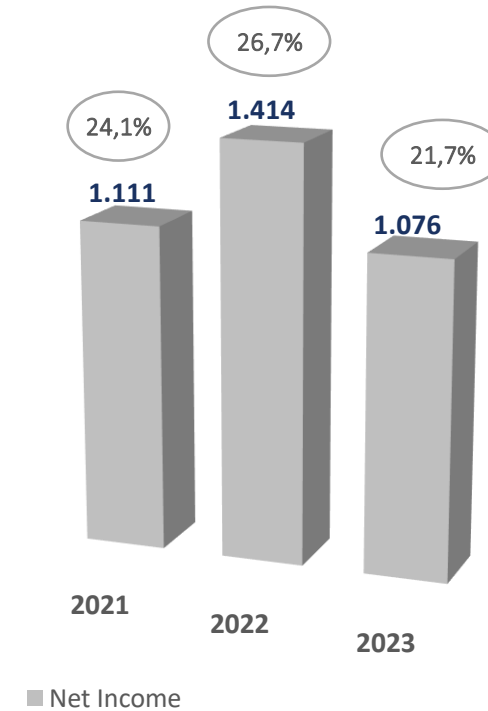
Value of Production (€/000)



Ebitda (€/000)



Net Income (€/000)

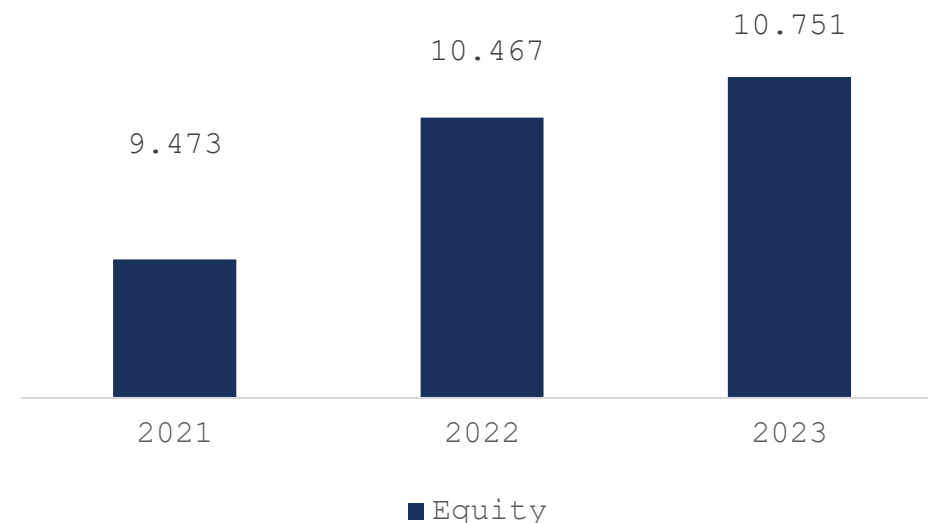


Net Debt / Equity

Net Debt (€/000)

	2021	2022	2023
Cash and Cash Equivalents	(4.814)	(4.393)	(3.686)
Current Financial Receivables	-	-	-
Financial assets other than fixed assets		(1.598)	(1.671)
Current Financial Debt	223	174	86
Current Net Debt	(4.591)	(5.817)	(3.600)
<i>Long term Financial Receivables</i>	-	-	2372
Long term Financial Debt	391	315	299
Net Debt (Cash)	(4.199)	(5.502)	(5.672)
*including credits from grants	(4.923)	(6.407)	(8.836)

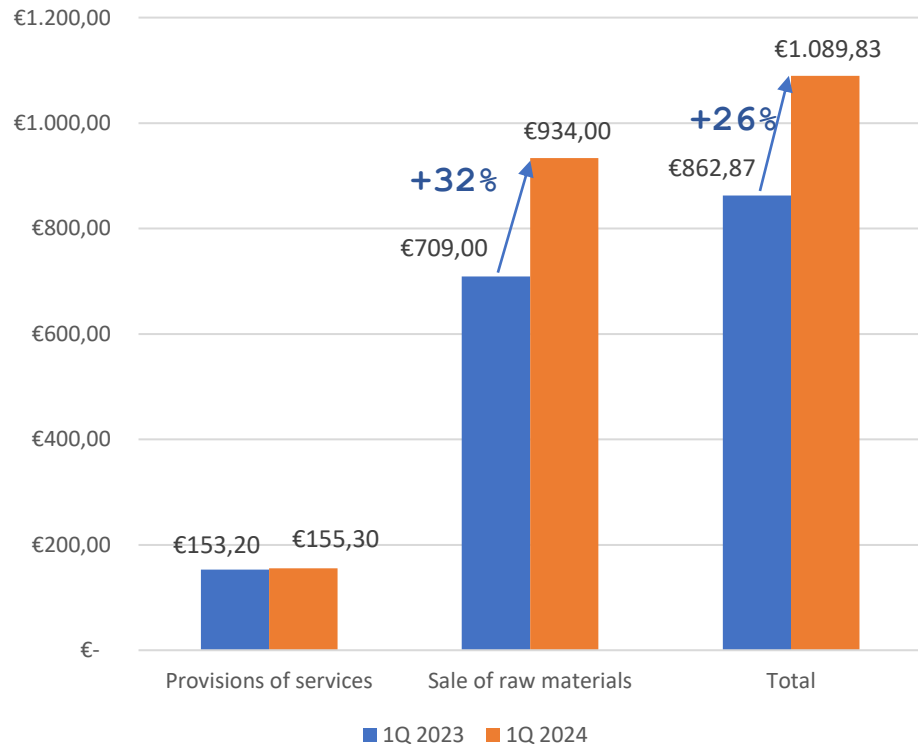
Equity (€/000)





Difference between first quarter 2024 and first quarter 2023

1Q 2024-1Q 2023



The total turnover is increased of 26 %.

The main difference between first quarter 2024 and first quarter 2023 is about the sale of raw materials, the increase for them is in fact of plus 32%.

Secondarily Arterra Bio have many collaborations for research purposes, total revenues, so, are given also by Provisions of services.



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THANK YOU!