

SEQENS

PERSONAL CARE

CELL'INTACT™

Buckwheat seed extract
for urban skin

THE EXPO'BIOTA SOLUTION

- Anti-pollution skin booster
- Skin microbiota reinforcer
- Oxidative stress reducer
- Skin complexion perfecter



* On a selection of references

Buckwheat: a super shield seed



Buckwheat is believed to have originated in Northeast Asia and has since spread all over the world. Thus, it is known as one of the first domesticated crops on the planet.

Polygonum Fagopyrum is an annual pseudo cereal, belonging to the *Polygonaceae* family. At maturity it stands between 2 and 4 feet tall. It flowers and then produces hundreds of small brown seeds with high nutritional value.

Buckwheat is indeed considered a super seed, and has been in the spotlight thanks to gluten-free diet trends.

Buckwheat possesses other super powers and can even prevent chronic diseases. It's the only pseudocereal that contains **rutin**, a strong antioxidant, anti-inflammatory and anticarcinogenic polyphenol recognized by the pharmaceutical industry.

It also contains other polyphenols like **hyperin** known for its antihypertensive and **anti hypercholesterolemic** effects.

Finally, buckwheat can also act as a prebiotic thanks to sugars like D-Fagomine that enhance immune defenses.

Phytoremediation: a plant with anti-pollution powers

Besides its nutritional and health properties, buckwheat is currently being used in organic farming as a soil 'cleaner'. This is called **phytoremediation** and it consists of removing pollutants from the soil using plants. It's possible thanks to the plant's metabolism and the rhizosphere. In fact, buckwheat has the ability to promote specific bacteria in the ground that are useful for its own growth and for the quality of the soil.

This is a cooperative relationship between plants and micro-organisms to remove pollutants from the soil.

From this exceptional raw material, Seqens Personal Care has developed **Cell'intact™**, an active ingredient for urban skin, developed from the enzymatic extraction of buckwheat seeds.

This active is rich in polyphenols known for their antioxidant and anti-inflammatory properties, and contains carbohydrates to moisturize.

A responsible partnership

In line with our CSR policy, we use buckwheat which comes from the historical Brittany region in France. This raw material is certified by the Protected Geographical Indication which guarantees an eco-friendly and high-quality buckwheat culture. We have implemented a win-win partnership with our fair-trade certified farmer: he provides us with a local organic ingredient that ensures traceability, while we enable him to diversify his business in the cosmetic industry in addition to the food industry (mainly creperies in France and beyond).

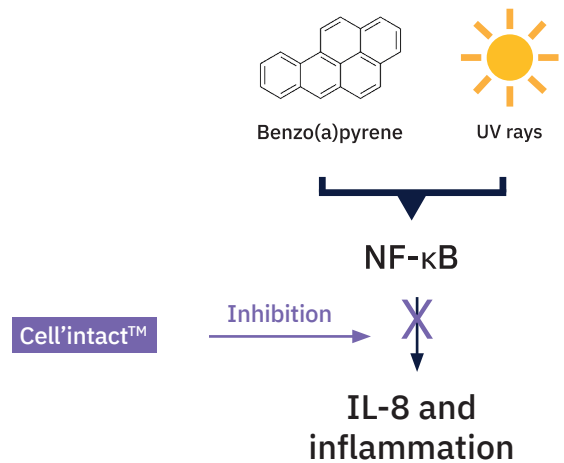
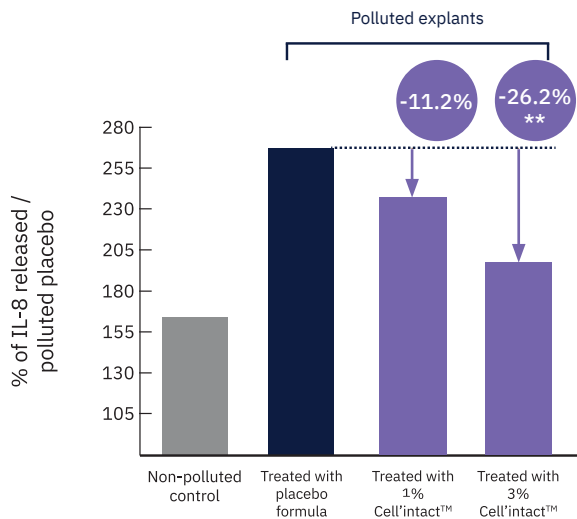
Several grades of Cell'intact™ are available, which are all DNA tested, including an organic grade.



Ex vivo

Mechanisms of action

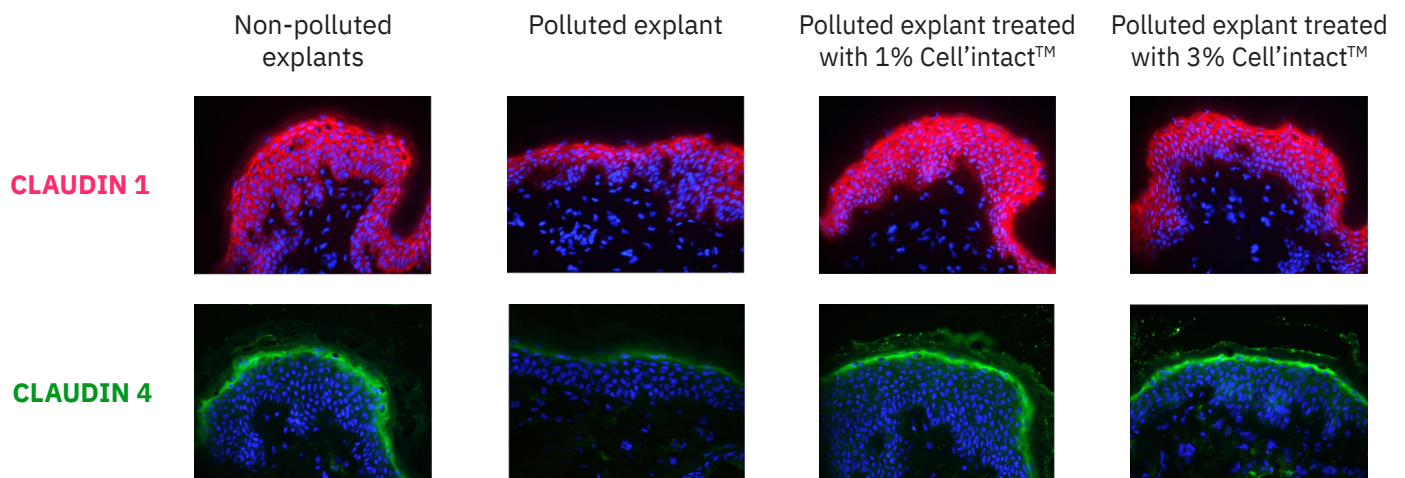
Anti-inflammatory effect



Human biopsy, treated with a pollutant (Benzo(a)pyrene) with placebo formula or with Cell'intact™.
** p < 0,01

Cell'intact™ fights against the harmful effects of pollution, tobacco smoke and UV rays by decreasing the pro-inflammatory response by 26%.

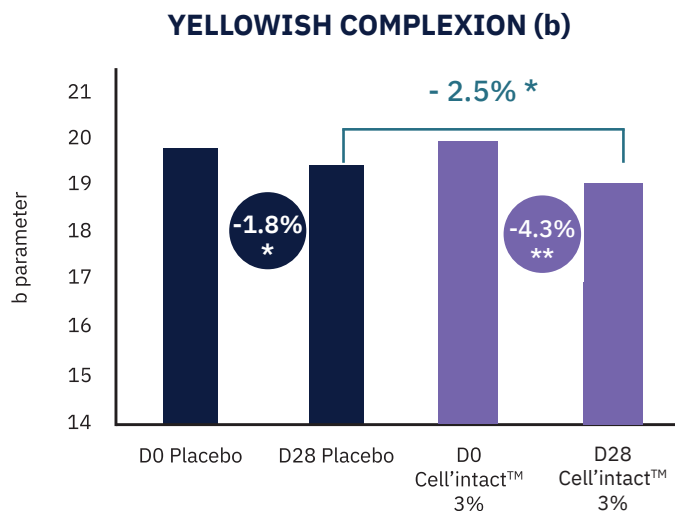
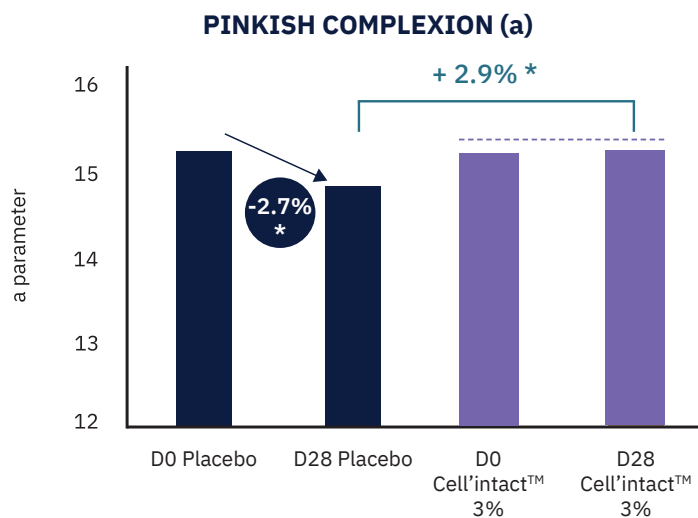
Skin barrier function is reinforced



Cell'intact™ prevents the degradation of Claudins-1 and -4 and restores tissue integrity, homeostasis and the epidermal barrier.

In vivo

Skin complexion is enhanced

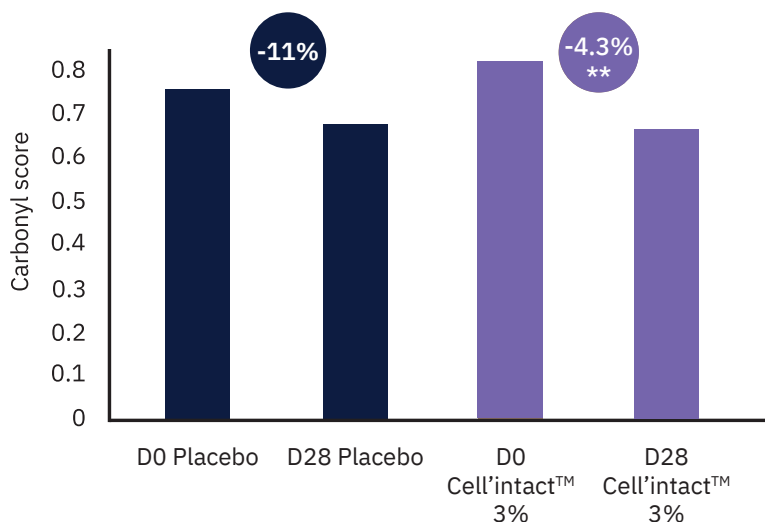


PROTOCOL

- 26 women between 24 and 59 years old, living in or close to highly polluted zones
- Hemi-face application twice a day for 28 days with Cell'intact 3% formulation and a placebo formulation
- Evaluation at D0, D28, chromameter
 - Skin complexion
- Evaluation at D0, D28, carbonyl score
 - Protein oxidation
- Evaluation at D0, D28, Sequence number of *Paracoccus aminovorans*
 - Skin microbiota

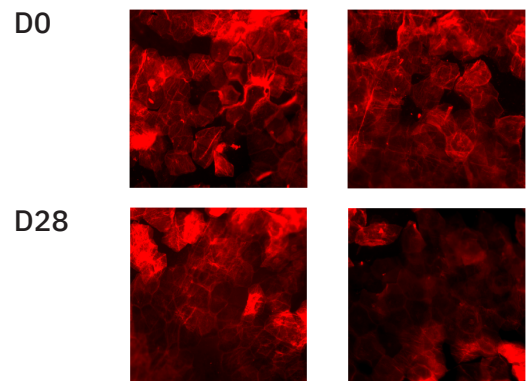
Cell'intact at 3% helps to balance skin tone by maintaining a rosy complexion and decreasing yellowish tones.

Protein oxidation is significantly reduced



Volunteer 13

PLACEBO CELL'INTACT™ 3%

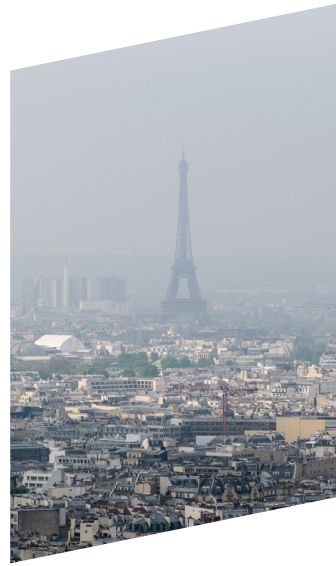


*p < 0.05
 ** p < 0.02
 *** p < 0.01

As an antioxidant active ingredient, Cell'intact™ significantly reduces protein oxidation by 19.7%.

Expo'Biota: an innovative method

Pollution analysis



4 different zones :

1. High pollution (HP)
2. Moderate pollution (MP)
3. Low pollution (LP)
4. Very low pollution (VLP)

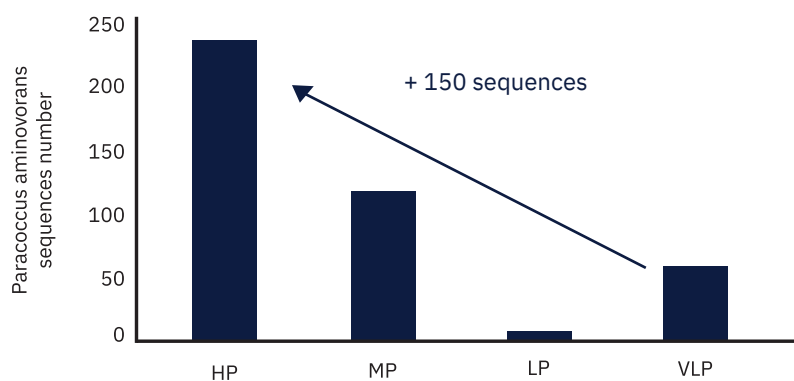
INRAE

Microbiota study

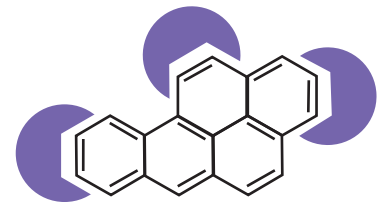
Air microbiome analysis

SEQUENCE NUMBER OF *PARACOCCLUS AMINOVORANS*, ACCORDING TO THE DIFFERENT ZONES

Paracoccus sp. is known to degrade PAHs* such as BaP¹.



PARACOCCLUS AMINOVORANS



Trend towards an increase in the number of Paracoccus aminovorans in the highly polluted zone shows an atmospheric adaptation.

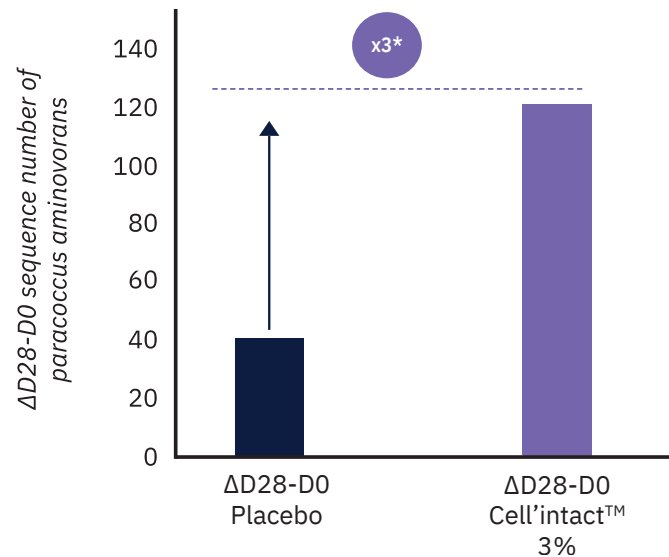
*PAHs: Polycyclic aromatic hydrocarbons

¹Teng and al, 2010 ; Kanaly and al, 2000

In vivo

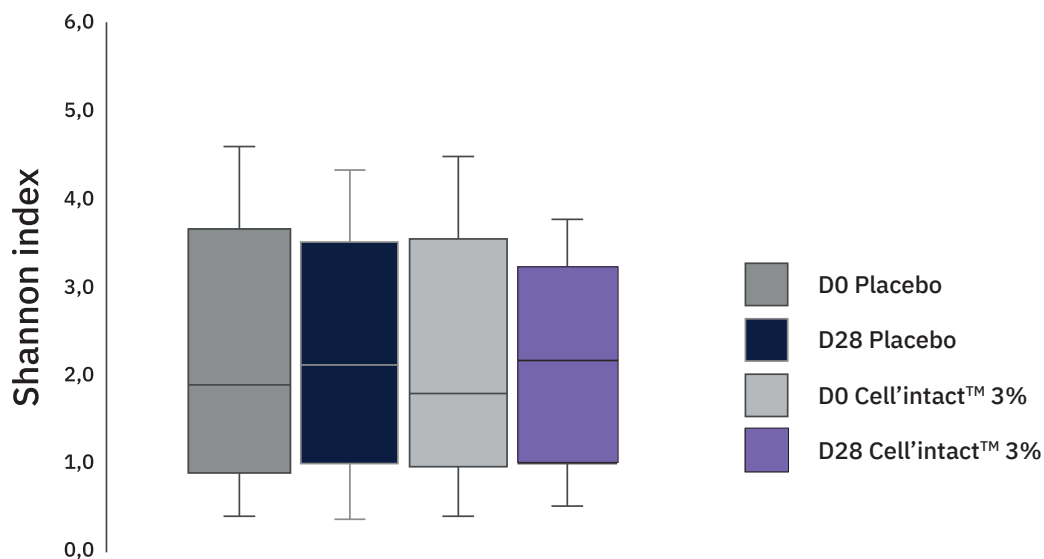
Cell'intact boosts skin microbiota

SEQUENCE NUMBER VARIATION OF *PARACOCCLUS AMINOVORANS* AFTER 28 DAYS APPLICATION



As a preventative anti-pollution active ingredient, Cell'intact™ significantly increases PAH-eating bacteria by up to 3 times in the skin microbiota.

SHANNON INDEX AT D28 AND D0 FOR THE PLACEBO AND CELL'INTACT™ 3%



Cell'intact™ at 3% enhances the skin microbiota composition with pollutant-eating bacteria while maintaining skin microbiota balance.

Product Information

Reference	Multiple grades available
INCI	AQUA, POLYGONUM FAGOPYRUM SEED EXTRACT (SODIUM BENZOATE, POTASSIUM SORBATE, 1,2-HEXANEDIOL)

China IECIC 2021	Listed
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Product description

Physical form	Liquid
Color	Yellow to light brown
Odor	Characteristic

Use

Recommended percentage of use	3%
Formulation	Under request

Efficacy

Biological efficacy	Fight against pollution by reducing the pro-inflammatory response. Maintains skin homeostasis and reinforces the epidermal barrier by preventing Claudin 1 and 4 degradation.
Clinical efficacy	Balances skin complexion and reduces protein oxidation. Reinforces the skin microbiota.

Marketing information

Cosmos status	Certified grade available
Trademark	Cell'intact™
Origin	France (plant origin: France, Brittany, Protected Geographical Indications)

Claim suggestions

- Protects skin from daily aggressions
- Reinforces the skin barrier function
- Helps to reduce cutaneous inflammation
- Enhances skin complexion
- Reduces yellowish complexion
- Reduces oxidative stress
- Reinforces the skin microbiota
- Maintains the skin microbiota balance

Trend applications

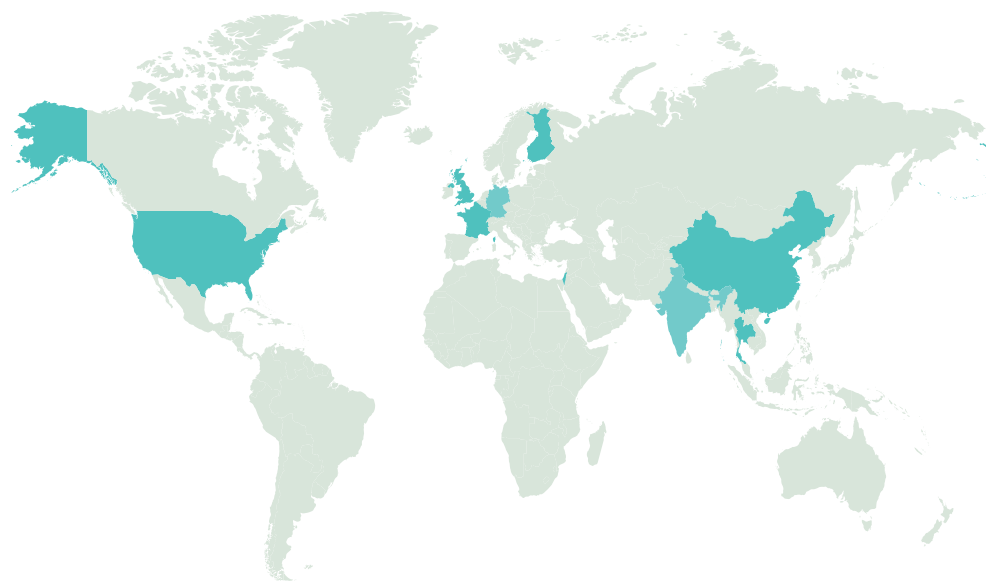
- Urban protection skin care
- Superfood concept
- Sensitive skin
- Botanical shield
- Delicate skincare
- Microbiota concept
- Exposome concept
- Expo'biota concept



* On a selection of references



SEQENS, an integrated global leader in pharmaceutical synthesis, specialty and personal care ingredients



3,300
people



300
scientists, experts
and engineers



9
countries



9
R&D centers

ABOUT SEQENS PERSONAL CARE

Created in 2003, SEQENS is an integrated global leader in pharmaceutical synthesis, specialty and personal care ingredients, delivering outstanding performance, unrivaled market responsiveness and bespoke solutions to our customers.

SEQENS Personal Care manufactures a wide range of natural actives ingredients, preservative boosters and multifunctionals for the cosmetic market.

Our strong pharmaceutical heritage and health expertise allows us to provide:

- Strong expertise in synthesis from high potent to simple molecules
- Strict respect of quality, global compliance, environmental regulations
- Unique R&D and large production capacities for new development and scale up activities
- FLAGSHIP technologies such as flow chemistry, multi-catalysis, fractionated distillation...

SEQENS is committed to a CSR approach for over 15 years (Gold & Platinum Ecovadis certifications).



SEQENS

OUR SCIENCE FOR YOUR FUTURE

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