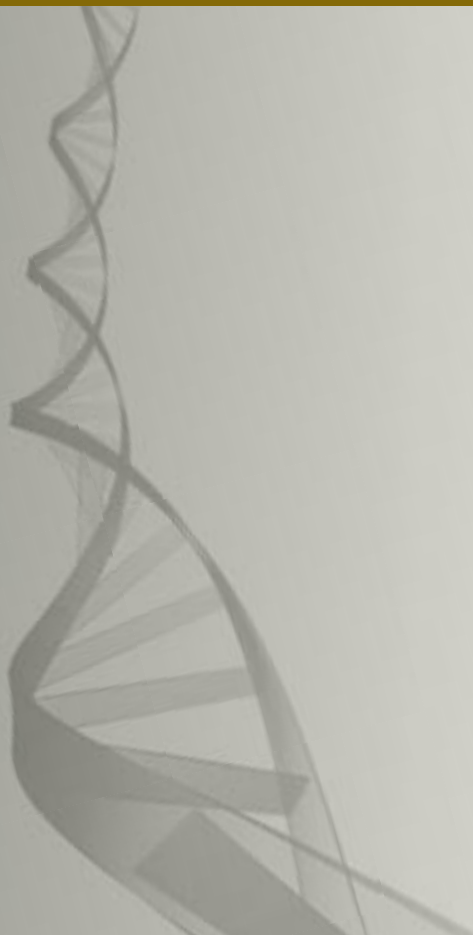




*At the cutting  
edge of molecular  
biology*





... the world's first and only company to provide the cosmetic industry with a selection of human-like growth factors produced in plants ... bypassing the use of traditional bacterial or animal cell production systems of Sif's competitors.

# Green Biotechnology

## – For Better Health

**Sif Cosmetics** is an Icelandic biotechnology company fully owned by **ORF Genetics**. Sif Cosmetics was founded to develop, market and sell formulated growth factors produced by ORF Genetics for cosmetic applications under the brand name **BIOeffect™** cellular activators.

ORF Genetics was founded in 2001 and with years of dedicated research and development, the company has originated a revolutionary way of using barley grain, instead of bacteria or mammalian cells, for production of recombinant growth factors. In 2008 ORF Genetics launched its product line of **ISOkine™** growth factors and cytokines for applications in molecular and cell biology, such as stem cell research, pharmaceuticals, regenerative medicine, tissue engineering and clinical transplantation.

*Sif Cosmetics and ORF Genetics are based in Iceland and use clean and sustainable geothermal energy to power their green manufacturing process of production.*

*Iceland is a European country and belongs to the European Economic Area. This means that European Union basic laws and regulations of economics and trade apply to Iceland.*





*“The process of reversing some of the effects of aging can be accelerated by use of topically applied growth factors that accelerate wound healing. Although it is unclear how large proteins such as growth factors actually penetrate the site of action, results of multiple clinical studies and continued marketplace success of products containing growth factors show the beneficial effects of these cosmetic products on reducing the signs and symptoms of facial skin aging.”*

*(Mehta & Fitzpatrick, Dermatologic Therapy, Vol. 20, 2007, 350-359)*

# Growth Factors

## and Cosmetics

**Growth factors** have been identified as the next generation ingredient for anti-aging products by opinion leaders in the cosmetic industry and an increasing number of cosmetic companies are using recombinant, bioactive proteins in their formulations.

Understanding the role of growth factors in the human body has not only proven to be directly related to understanding many cell developmental processes and diseases, but also has direct applications in obtaining a more **youthful and vibrant look** without drastic invasive procedures or expensive plastic surgery.

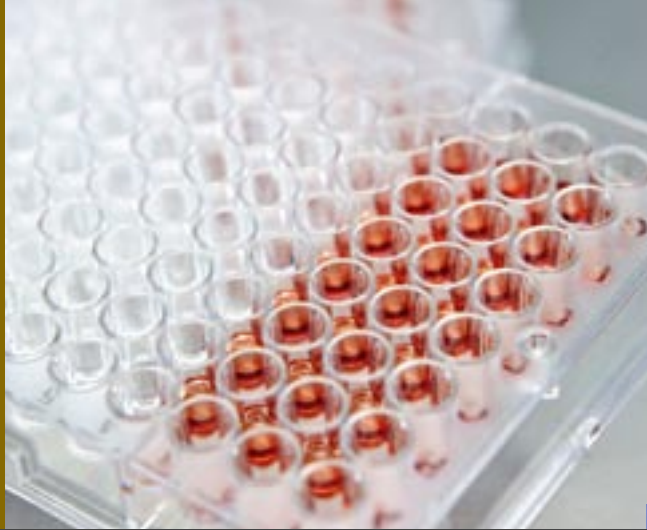
EGF was the first growth factor to be identified. Scientists Stanley Cohen and Rita Levi-Montalcini discovered the Epithelial Growth Factor (EGF) and received the 1986 Nobel Prize in Medicine for their achievements in understanding the role of EGF in Cell Biology.

Multiple clinical studies have since shown positive correlation with correcting signs of aging by facilitating changes at the cellular level to **revert damaged cells to a younger state**. Aging skin cells absorb the human growth factor nutrients and transform back into vibrant young skin cells, giving the user a more youthful look.

### **Applications of growth factors in cosmetics**

Anti-aging • Hair re-growth • Whitening • Wound healing





Plant extracts are a familiar source of ingredients in cosmetics making the plant-based production system developed by ORF Genetics a suitable production platform for high-end cosmetics, using cutting edge science to take plant derived ingredients to a new level of sophistication.

## What we do

### and how we do it

The **BIOeffect™** cellular activators are unique products for skin and hair care. They are a unique composition of human-like growth factor activity and a natural seed-based protein background, characterized by an array of protective, native barley seed proteins.

Sif Cosmetics is the only company in the world able to offer an array of human-like growth factors in a natural, plant-based, defined protective extract. The company is thus bypassing the traditional bacterial or mammalian-cell production systems, which often can carry contaminants through the process to the end product.

*Using barley as a bioreactor for producing growth factors results in clean, effective and environmentally friendly products that are:*

- Serum-free and animal-free.
- Endotoxin-free, more stable and less likely to irritate skin.
- Low in protease activity, more stable ingredient.
- Low in pyrogenic and pro-inflammatory activity, less likely to irritate skin.
- Easier in viral clearance.

Sif Cosmetics is able to provide a vast selection of BIOeffect™ cellular activators with different human-like growth factor activity, ranging from the most known activity (such as the EGF activity) to a more recently recognized activity (e.g. IL-18). Using its state-of-the art hydroponic, fully-automated cultivation technology with unmatched scale-up capabilities, the company is also able to deliver large quantities of fully packed or bulk formulated BIOeffect™ cellular activators to its customers.



*Sif Cosmetics has a unique position in the cosmetic industry, combining high technology innovations with facial care in a responsible green way. The key strengths of Sif Cosmetics are:*

- Extensive pipeline opening doors to an array of new products for improving the quality of life.
- Merging of medical technology and natural resources by producing human-like growth factors in plants.
- Environmental and social responsibility, the company utilizes sustainable, geothermal energy for all operations, minimizing waste and CO<sub>2</sub> footprint.
- Innovative and practical solutions in development, production and packaging by using state-of-the art hydroponic, fully-automated cultivation technology (HEKLAgro™).
- Located in the pure environment of Iceland, where the view reaches beyond the horizon.

*At Sif Cosmetics we are responsible people who make use of smart innovations and medical technology in order to improve the quality of life.*

### **The Company Name**

According to ancient Norse mythology **Sif** is a goddess, the most beautiful among women. Her golden hair is believed to represent golden fields of barley and fertility. Sif Cosmetics recombines the golden fields of barley with beauty – and ancient mythology is brought alive.



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