Cannabis & Hemp therapeutic solutions
Thanks to their rich characterization and proprietary extraction method, our therapeutic solutions are a reference point for Cannabis products, suitable for pharmacokinetic and pharmacodynamic studies, valuable clinical trials, and the development of drugs, food supplements and high-quality cosmetic formulations.

As a quality standard, it is important to assure the absence of degradation products, microbial contaminants, heavy metals, growth enhancers (common in illegal and not controlled products), and pest control chemicals.

We offer pure, controlled, safe, titrated, standardized and tailor-made Cannabis extracts with a reproducible profile of efficacy to improve treatment quality as well as patient health.

*GMP certifications available under request.
Cannabis and Hemp

Cannabis and Hemp are herbaceous, annual, taprooted plants. They are dioecious (male and female flowers occur on separate plants), rarely monoecious, and typically have an erect stem (up to 6m high) and leaves. Our Cannabis & Hemp products come from the processing of dried inflorescences and sub-tending leaves of pistillate (female) Cannabis plants.

There are more than 750 metabolites identified in Cannabis. The most important compounds are cannabinoids (phytocannabinoids), which have therapeutic effect, followed by terpenoids, able to modulate cannabinoid response (entourage effect). The main and most studied cannabinoids are Δ9-THC (Tetrahydrocannabinol) and CBD (Cannabidiol).

Main cannabinoids

**CBD**
(Cannabidiol)

Is one of the major non-psychotropic cannabinoid. It has many biological effects, beyond those linked to the endocannabinoid system and it does not exert any significant intrinsic activity on the cannabinoid receptors.

CBD does not cause psychotomimetic and anxiogenic effects or create dependence after repeated use. It has a better safety profile than other cannabinoids, such as THC. For instance, high doses of CBD are well tolerated in animals and humans.

**THC**
(Δ9-Tetrahydrocannabinol)

Is a psychoactive compound, extracted from the female inflorescences of Cannabis. THC targets and binds to cannabinoid receptors (CBRs), located primarily in the central nervous system (but also found in gut and bones) where it exerts its main biological activities.

THC can also act on other receptor systems. Both psychological and physiological dependence have been noticed in healthy individuals receiving tetrahydrocannabinol, but addiction is uncommon and has been seen only after prolonged high-dose administration.

**CBG**
(Cannabigerol)

Is a safe non-psychotropic Cannabis-derived cannabinoid, a precursor of biosynthetic cannabinoid pathways, which has great potential for interesting new therapeutic uses.

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS number</th>
<th>IUPAC name</th>
<th>Chemical formula</th>
<th>Molecular weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-)-trans-Cannabidiol</td>
<td>13956-29-1</td>
<td>2-[(1R,6R)-3-Methyl-6-(1-methylethenyl)-2-cycloexen-1-yl]-5-pentyl-1,3-benzenediol</td>
<td>C₁₂H₁₈O₂</td>
<td>314.47 g/mol</td>
</tr>
<tr>
<td>(-)-trans-Δ9-Form.</td>
<td>1972-08-3</td>
<td>(6aR,10aR)-6a,7,8,10a-Tetrahydro-6,6,9-trimethyl-3-pentyl-6H-dibenzo[b,d]pyran-1-ol</td>
<td>C₁₂H₁₈O₂</td>
<td>314.47 g/mol</td>
</tr>
<tr>
<td>Cannabigerol</td>
<td>25654-31-3</td>
<td>2-[(2E)-3,7-dimethylocta-2,6-dienyl]-5-pentylbenzene-1,3-diol</td>
<td>C₂₁H₃₂O₂</td>
<td>316.48 g/mol</td>
</tr>
</tbody>
</table>
About cultivation

Knowledge & selection

In-depth knowledge of Cannabis & Hemp cultivation methods and an accurate selection of plants allow us to obtain high-performance strains with high cannabinoid yields, each offering different suitability for THC or CDB-rich products.

Our plants are:
- Cultivated in greenhouses or in field
- GAP certified
- Organic certified
- GMO free
- From strains present in the European Register
- Cultivated in the European Union
- From the most suitable female cannabis & Hemp plants
- Monitored during all procedures from planting to harvesting, from drying to storing, and transportation
- Harvested at the most suitable time, to guarantee the highest content in cannabinoids

About production

Swiss excellence

CANNABIS L. INFLORESCENCES

1st solvent phase

CONCENTRATED SOFT EXTRACT

PURIFICATION MCT OIL PHASE DRY PHASE LIQUID PHASE

Pure Compounds Cannabis Oil Extracts Cannabis Dry Extracts Cannabis Water Soluble Extracts
The power of cannabinoids in our tailored products

Obtained exclusively from inflorescences of female plants, with specific and reproducible cannabinoid profile. They are processed with our validated quality control and extraction methods. Our extracts have the highest quality possible, in compliance with GMP.

Our Cannabis & Hemp products are:
— **Standardized** in THC and CBD
— **Reproducible bioavailability**
— Available in the most suitable form:
  - Oil
  - Dry extract
  - Water soluble extract
  - Pure compound
— Produced under GMP, certified by Swissmedic Agency
— GMP certificates have been released according to each process and to each manufactured product

### Cannabis Oil Extracts

<table>
<thead>
<tr>
<th>Product</th>
<th>Composition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD Oil extracts</td>
<td>1% - 5%</td>
<td></td>
</tr>
<tr>
<td>THC Oil extracts *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil with Pure CBD</td>
<td>5%</td>
<td>Pharma Grade Under Development</td>
</tr>
<tr>
<td>Oil with Pure CBD</td>
<td>up to 65%</td>
<td>Pharma Grade Under Development</td>
</tr>
</tbody>
</table>

### Pure compounds

<table>
<thead>
<tr>
<th>Product</th>
<th>Composition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pure CBD</td>
<td>NLT 98%</td>
<td>DMF Available end 2018</td>
</tr>
<tr>
<td>Pure THC</td>
<td>NLT 98%</td>
<td></td>
</tr>
<tr>
<td>Pure CBG *</td>
<td>NLT 98%</td>
<td></td>
</tr>
</tbody>
</table>

GMP compliance certified by Swissmedic

Certificates

- **GMO Free**
- **Allergen, Gluten, Lactose, Melamine Free**
- **Vegan certified**
- **Kosher certified**
- **Halal certified**

High level of compliance with GMPs in product manufacturing

GMP compliance certified by Swissmedic
Cannabis water soluble extracts

CBD Water soluble extract  5% - 10%

Cannabis dry extracts

CBD Dry extract *  8%
THC Dry extract

* Under development

Key
 Pharma
 Food Supplement

Cannabis Sativa is rich in CBD
Cannabis Indica is rich in THC
Both belonging to the same species of plant: Cannabis L.
Therapeutic overview

Our Cannabis & Hemp Extracts are suitable for
— Pharma
— Food Supplements
— Medical Devices
— Cosmetics
(depending on local and national laws and regulations)

Clinical applications for Cannabis extracts

There are a large number of ongoing clinical and preclinical studies focusing on cannabis and cannabinoids. The most relevant funding show that Cannabis and its derivatives has a **multi-levels** role in the organism, indicating the potential extent of a complex therapeutic scenario and representing an exciting target for disease management and health promotion.

**Therapeutic overview**

**Therapeutic uses**

**Skin**
Psoriasis, Allergic contact dermatitis, Melanoma, Skin inflammation

**Inflammation**
Central nervous system & Psyche
Neuroprotection for Alzheimer's disease, Quitting smoking, Epilepsy, Anxiety, Depression, Sleep problems, Psychosis, Pediatric resistant spasticity, Opioid detoxification, Obsessive compulsive disorder, Pain, ADHD, Migraine

**Chest/Abdomen**
Functional chest pain, Crohn's disease

**Autoimmune diseases**
Rheumatism, Rheumatoid arthritis, Fibromyalgia

**Lungs**
Asthma

**Anxiety**
Nausea, Vomiting, Debilitation, Weight loss, Appetite stimulation

**Anorexia**
Weight loss, Appetite stimulation

**AIDS**
Nausea, Vomiting, Debilitation, Weight loss, Appetite stimulation

**Glaucoma**
Nervous system
Chronic pain, Muscle spasms, Gilles de la Tourette syndrome

**Cancer**
Nausea, Vomiting, Debilitation, Weight loss, Appetite stimulation

**Petcare**

Anxiety

Nausea

Pain

Inflammation

* Not registered before regulatory authorities