# IPLASMA-DE®

**Solutions for medicine and cosmetology**

# EXECUTIVE SUMMARY

## WHO WE ARE

**IPLASMA-DE GmbH -** is a technology company focused on developing and integrating **patented cold plasma solutions.**

## OUR PRODUCT

**Our solutions target is cold plasma treatment** for human skin to stop ageing processes and different diseases (acne, papilloma, nail fungus, scars, etc.)

## OUR MISSION

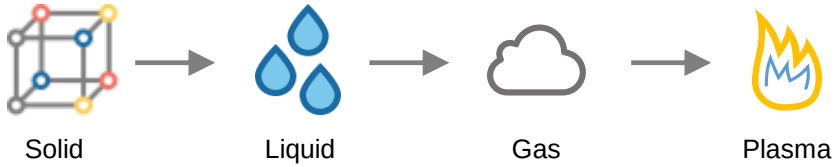
We see cold plasma technology as **a revolutionary way of making beauty safer and affordable.** Our mission is to provide high quality services for people having any delicate skin problems.

## OUR TEAM

Our team brings together **extensive scientific expertise** in the field of cold plasma technology, combining international business outlook and innovative mindset.

# Cold Plasma Technology

## WHAT IS PLASMA?




- Plasma is an ionized gas, one of the four fundamental states of matter.
- Atomic links break and positive ions together with electrons form a gaseous mix.
- A large number of free charges and the general neutrality of plasma gives its unique properties.

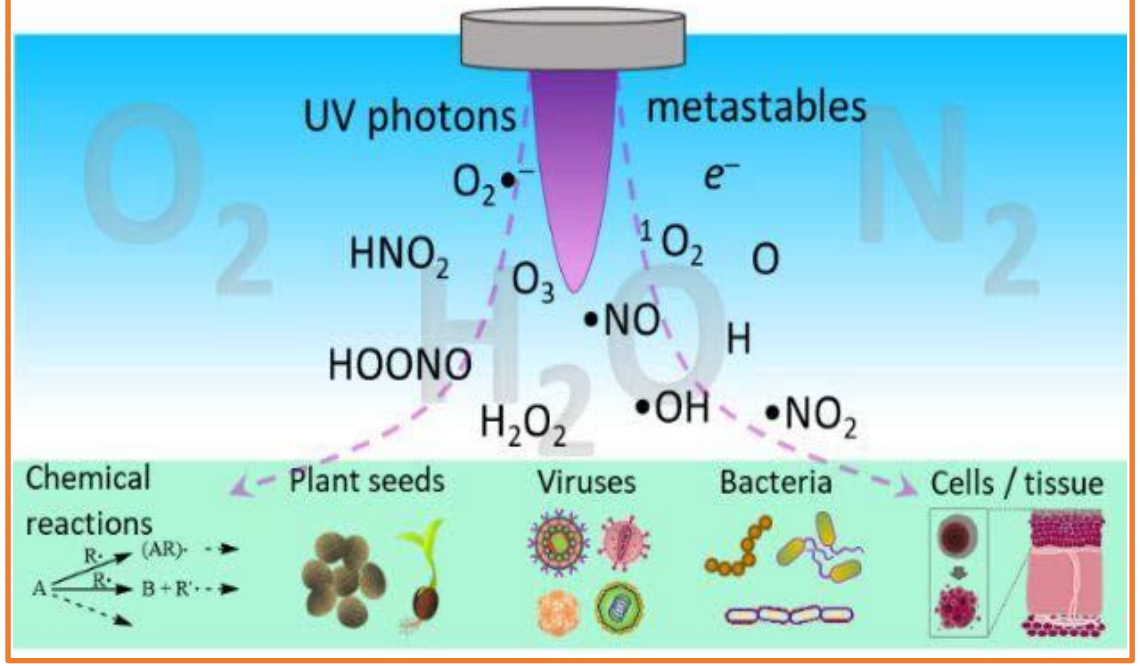
## TYPES OF PLASMA

| | |
|---|---|
| Hot plasma | Fully ionized gas with a temperature of several thousands degrees<br>**Examples**: sun, industrial plasmatrons, etc., |
| Cold plasma | Partially ionized gas with a temperature of tens degrees<br>**Examples:** Plasma TV, neon lamp. |

## COLD PLASMA

| | |
|---|---|
| Temperature | Tens of degrees. |
| Contents | Ions, electrons, atoms, free radicals, UF radiation. |
| Working substance | Inert gases: argon, helium, nitrogen and air. |

## Fitches



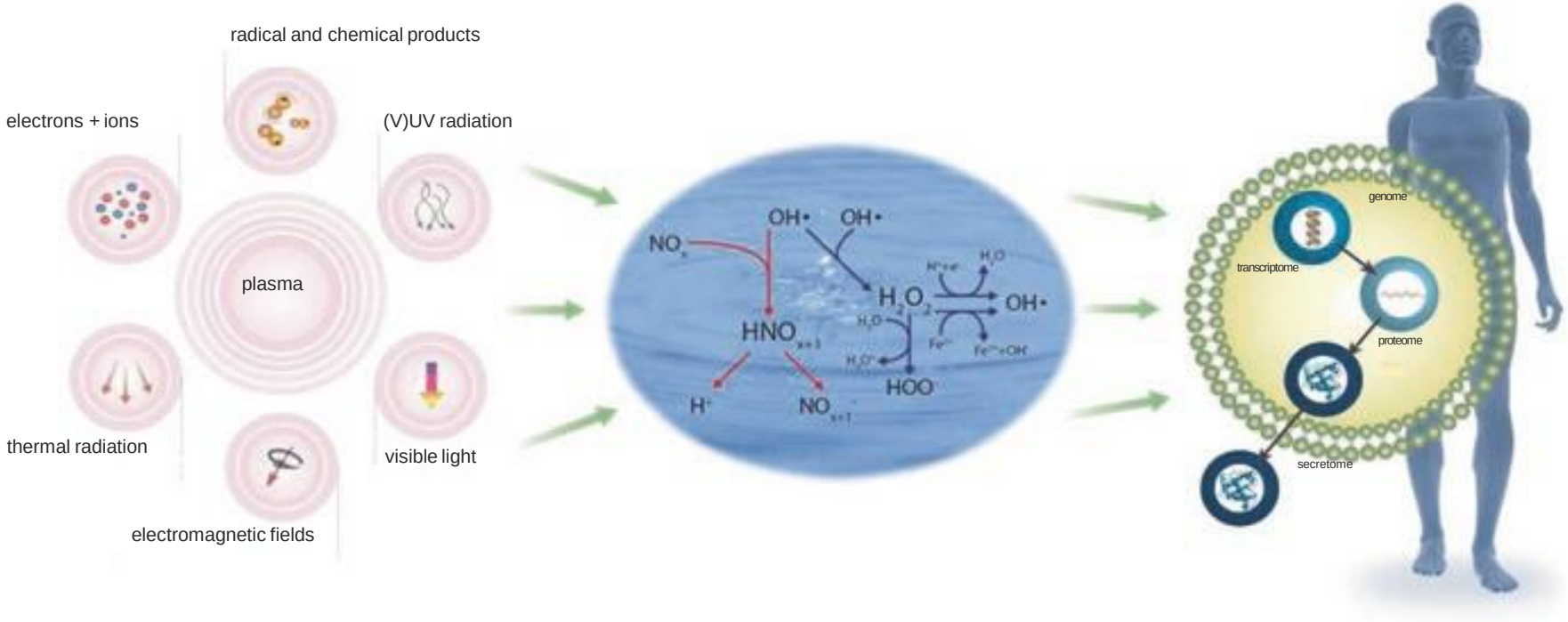
# Basic Mechanisms of Biological Plasma Effects

**The initial point of all biological effects is the physical generation of plasma under atmospheric environmental conditions. To produce the different plasma compounds illustrated in Fig, three basic processes can be outlined:**

**1**. Ionization of atoms or molecules of a gas that itself is not directly biologically active (noble gases like argon or helium, gas mixtures containing oxygen, nitrogen and air, and air as working gas), preferably using electrical energy.

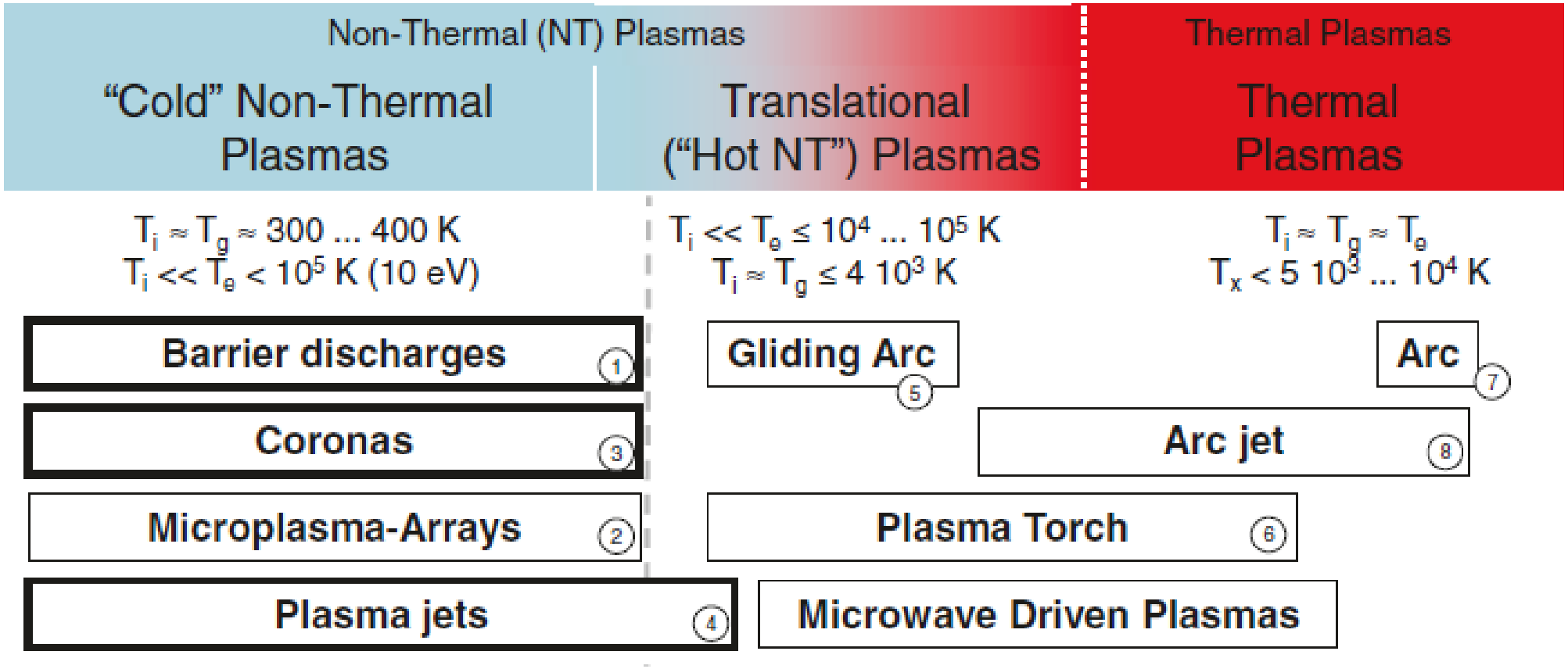
**2**. Interaction of ionized atoms/molecules and free electrons with other atoms or molecules in the plasma phase as well as with neighboring media (above all atmospheric air, but also liquids or surfaces), resulting in the generation
of reactive species e.g., radicals.

**3**. Emission of electromagnetic radiation (UV/VUV, visible light, infrared/ thermal radiation, electromagnetic fields) as an additional result of ionization and excitation processes in the plasma.



# Technology

**Technically, plasmas are gas discharges. The arrangement of a gas discharge consists of at least two electrically conductive electrodes, between which an electrical potential (voltage) is built up thus inducing an electromagnetic field. In order to ignite a plasma, which can be described as the maintenance of the continuity of ionization processes in the gas space, high field strength is required. The absolute value of the field strength is dependent on the type of gas as well as on the gas density. In general, it can be estimated using the so-called Paschen curve and is of the order of a few kV/mm**

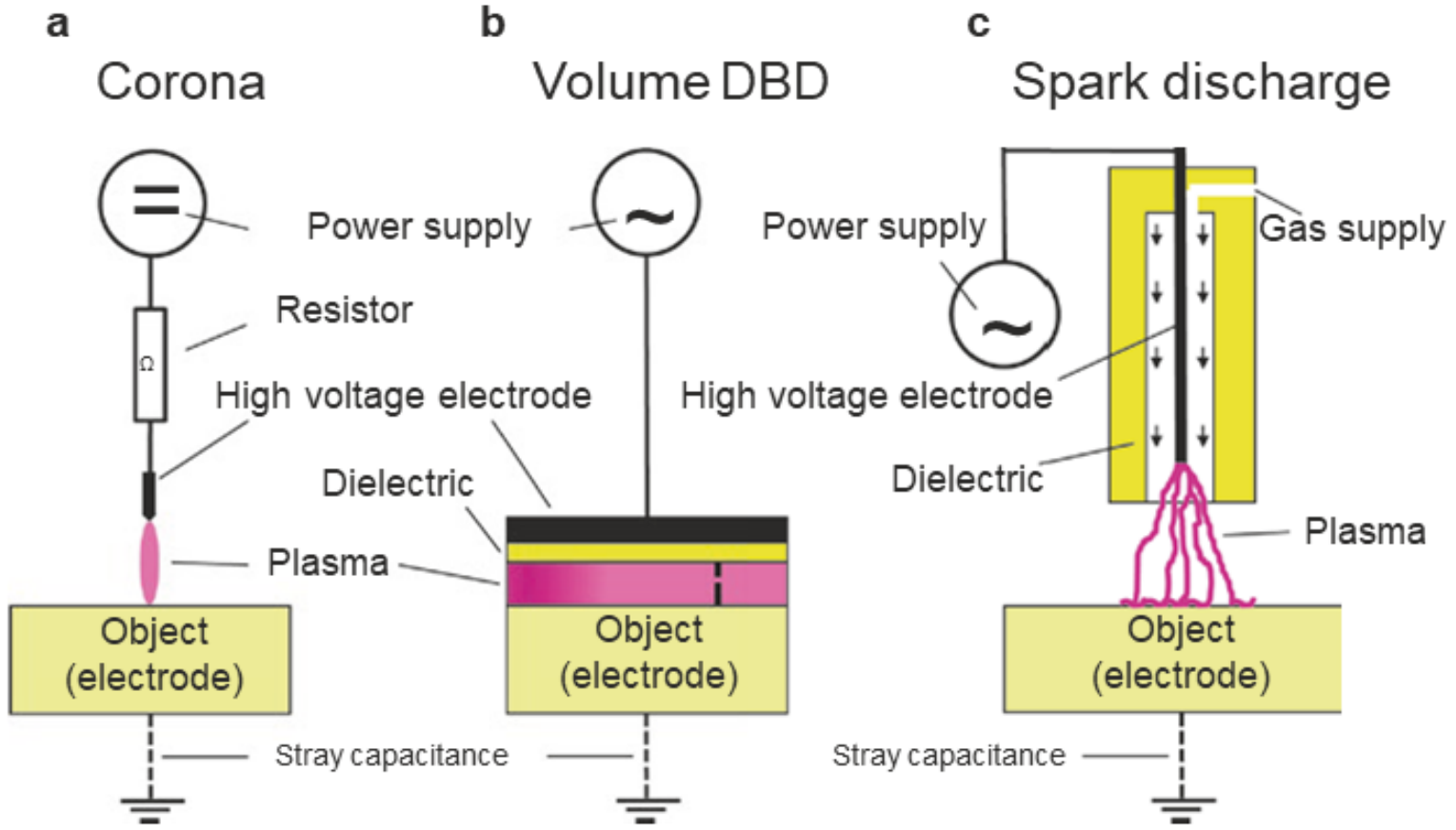


# Plasma Source Concepts

**A classification of the source concepts by means of their electrical configuration and interaction characteristics with objects facilitates the general distinction between direct and indirect plasma sources.**

## Direct Plasma Sources:

**In direct plasma sources, the object to be treated plays the role of one of the electrodes and is, therefore, part of the device's electrical circuit.**

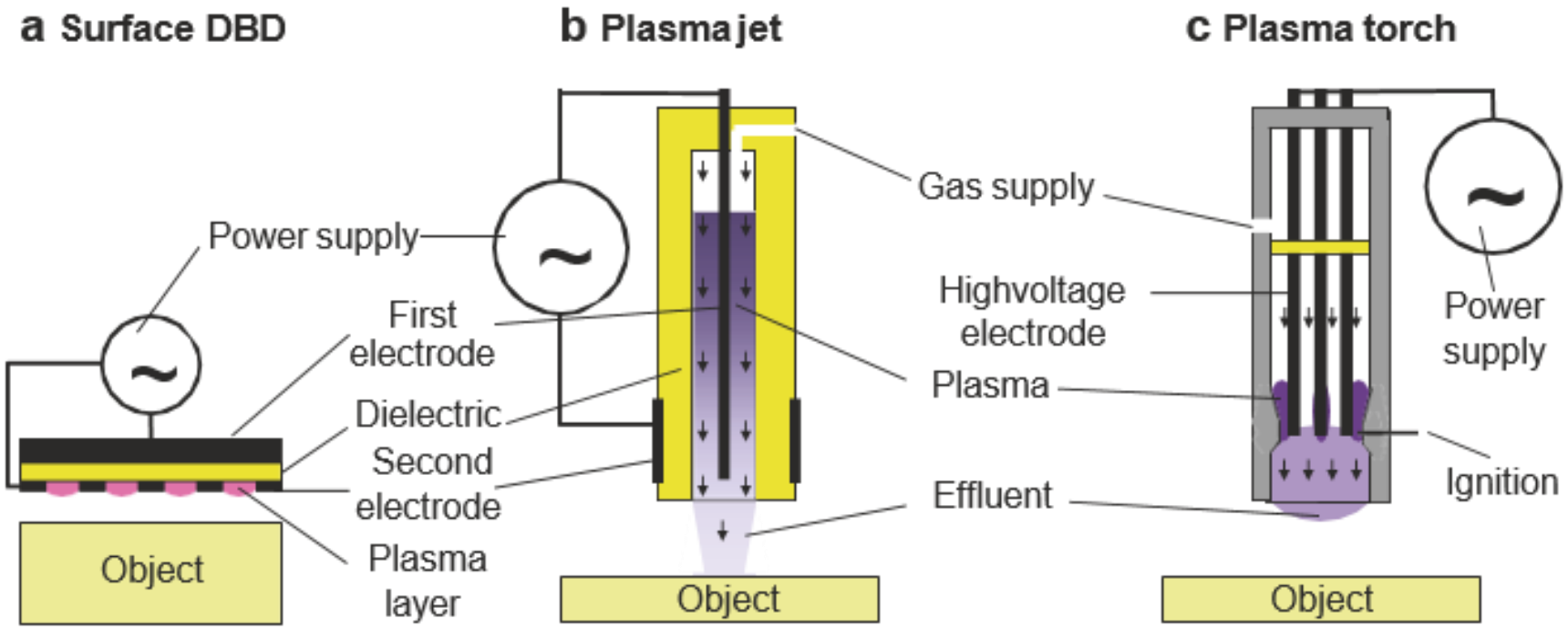



Schematic of Corona discharge (**a**) and volume DBD (**b**) as prominent concepts of direct plasma sources generating cold physical plasma. Spark discharges (**c**) are also direct plasma sources but are often associated with significant heat transfer to the object

# Plasma Source Concepts

## Indirect Plasma Sources:

**The electrical circuit of indirect plasma sources is self-contained so that the electromagnetic field and thus the plasma physics are not strongly dependent on an object or environmental properties. The chemical species generated in the plasma are transported to the object's surface via convection and diffusion mechanisms.**




Schematic of surface DBD (**a**), plasma jet (**b**) and plasma torch (**c**) as prominent concepts of indirect plasma sources

# Cold plasma jet machines on the medical market (not for surgery, surface treatment only)

**Adtec Steriplas**, Japan-GB. ~80 Keuro

**KinPen,** Germany. ~30 Keuro

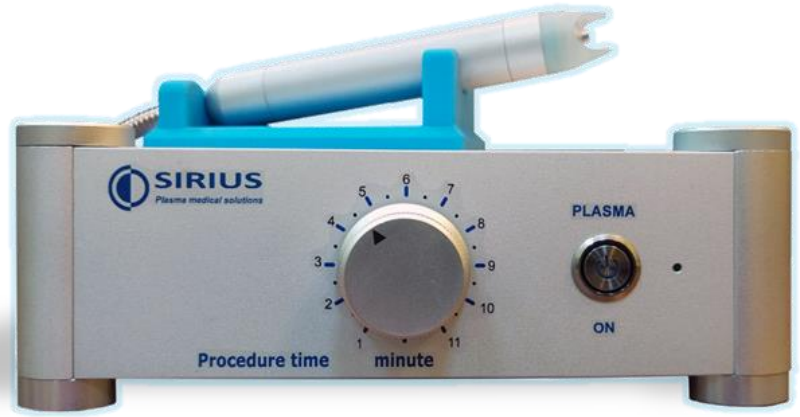
**Common characteristics:**

- working gas - only Argon
- ionization mode RF 2.4 GHz, AC 1MHz
- plasma jet length 3-5mm
- plasma spot diameter 1-3mm

**ANT Power Tec**. Taiwan, ~30 KUSD

**HEAI-300**
South Korea,
~25 KUSD

# THE “SIRIUS MEDICINE” DEVICE




- working gas – Helium or Argon
- ionization mode - HV nanosecond impulse
- plasma jet length 10-40 mm
- plasma spot diameter 6-10 mm
- power requirement < 50W
- **LOW PRICE – 5 kUSD**

## Description

The patented technology uses the unique properties of cold atmospheric plasma (CAP) that has **a healing effect on human tissues and mucous membranes** and avoids the disadvantages and limitations of any known technology in dermatology

“SIRIUS MEDICINE” softly accelerates period of reepithelization and treats chronic recurrent herpesvirus infection

## Features

**Absolutely painless treatment**
that is safe for humans

**Unpreceded speed**
x3 times faster than traditional dermatology, dentistry and after surgery types of therapy

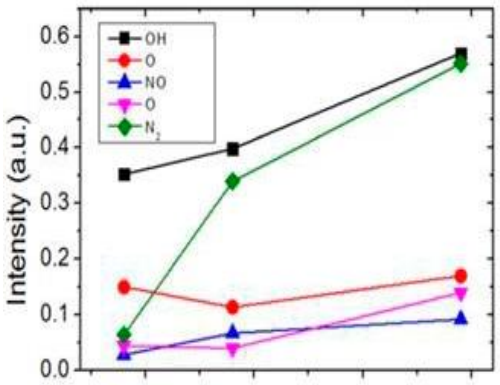
**Comparable efficiency**
the device successfully competes with widespread technologies in medicine

# The main distinction’s of SIRIUS MEDICINE plasma jet from the existing on the market

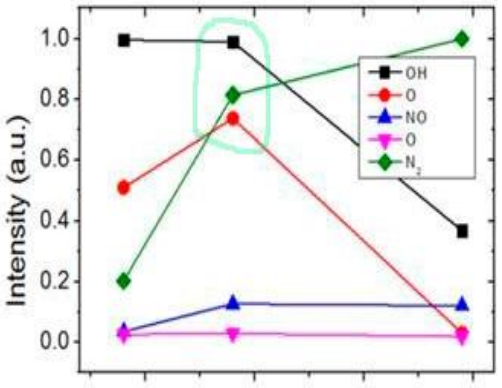
- **SIRIUS Medicine is unique in that it generates a jet of cold plasma by ionizing the working gas (helium) by high-voltage nanosecond accelerating pulses.**
- **SIRIUS Medicine produces a homogeneous plasma jet. The number of active components increased by several times compared with plasma jets formed by other ionization methods.**
- **The nanosecond pulse ionization generator is built directly into the working tool (plasma pen).**
- **Significant plasma jet frame allows SIRIUS Medicine to treat extensive wounds and skin injuries.**
- **The main active elements of plasma are oxygen radicals ( O+), nitrogen radicals ( N2 ), hydroxyl radicals (OH ).**

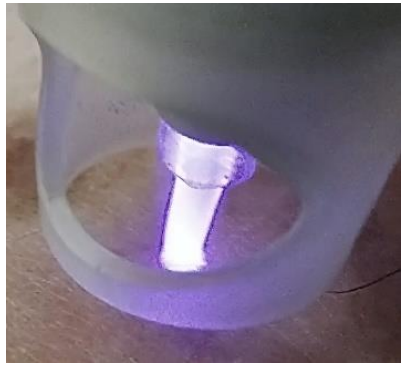
**The graphs show below the generalized dependences of ( O+), (OH), and ( N2 ) for RF ionization systems and ionization by nanosecond accelerate Plasmius M pulses. Treatment performance of Sirius Medicine is much more efficient due to increases (OH) in 2.5 times, N2 in 2.3 times, and O+ in 5 times.**

RF ionization




Sirius Medicine



Completely homogeneous cold plasma, not achievable in other devices

## AREAS OF USE

- Surgery
- Dentistry
- Oncology
- Dermatology
- Treatment of burns
- Gynecology
- Otorhinolaryngology
- Cosmetology

## PURPOSE

- Treatment of wounds and affected soft tissues
- Dental health treatment
- Treatment of various skin diseases
- Elimination of cosmetic skin defects

# Testing Sirius Med by Pirogov National Research Medical University (RF)

## Applications and results

As part of a comprehensive treatment Kaposi's sarcoma

Before surgical treatment

Two weeks after surgery

Four weeks after surgery

*Classical Kaposi's sarcoma*
*in a woman 50 years old 3-year event-free survival rate after combined local treatment: surgical excision followed by*
*followed by treatment postoperative area with Cold Plasma!!!*

After a single cold plasma treatment

*After a course of cold plasma therapy*
*5 sessions of 10 minutes each.*

# Testing Sirius Med by Pirogov National Research Medical University (RF)

## Applications and results

Syringoma.

Condition after the first treatment
session locus with maximum wetting

Benign tumor of the apocrine sweat glands.

One month after the first session treatment

Condition after the first session treatment session

Total scrotal skin lesions.

One month after the first treatment

- **Favorite localization is the eyelids, periorbital, neck, and chest area, near the clavicles, abdomen, upper extremities, and external genitals.**
- **Sirius Med is effective in treating infectious and inflammatory diseases of the skin and its appendages proliferative diseases**

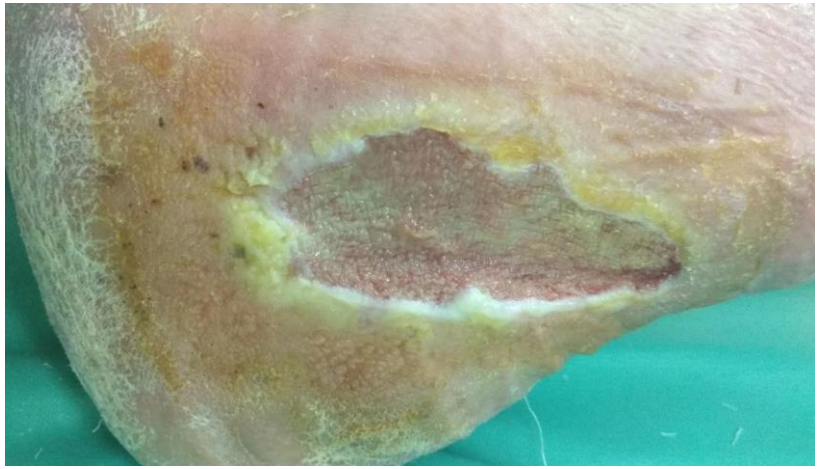
# Testing Sirius Med by Vishnevskiy Central Clinical Hospital (RF)

## Applications and results

**Budd-Chiari syndrome, chronic form, portal hypertension, hepatosplenomegaly, ascites.**

Trophic recurrent ulcer of the left shin

Condition before cold plasma application



After 10 sessions of 5 minutes each

# CURE EFFECTS

Before treatment

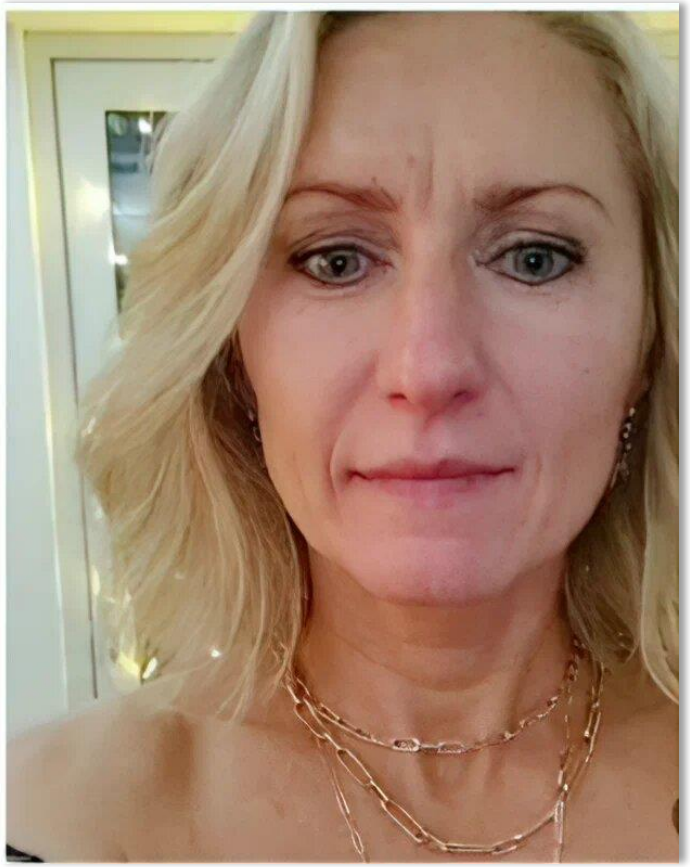
After treatment

Before treatment

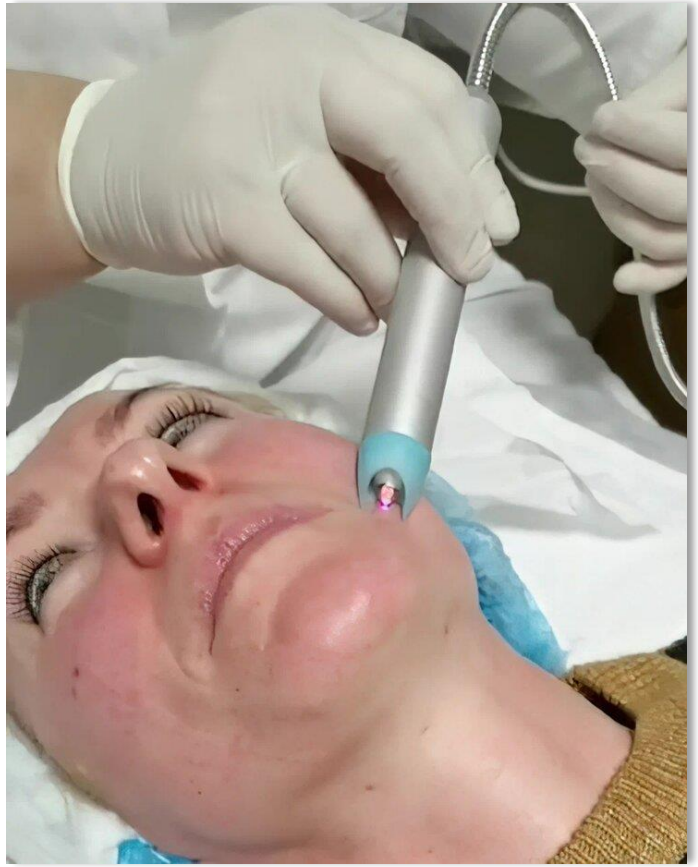
After treatment

# Effects in cosmetology (1/2)

Before treatment



In process of treatment



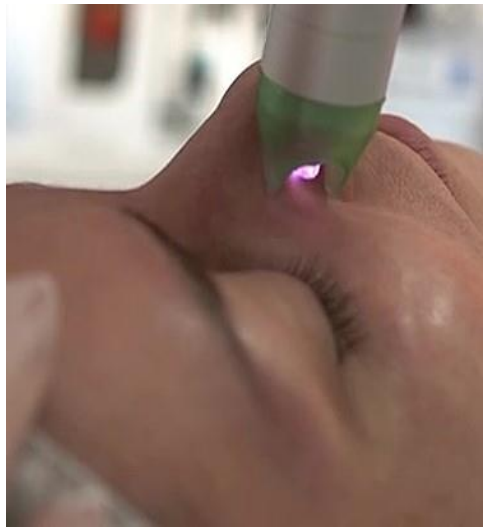
8 reps x 15 min

After treatment

# Effects in cosmetology (2/2)

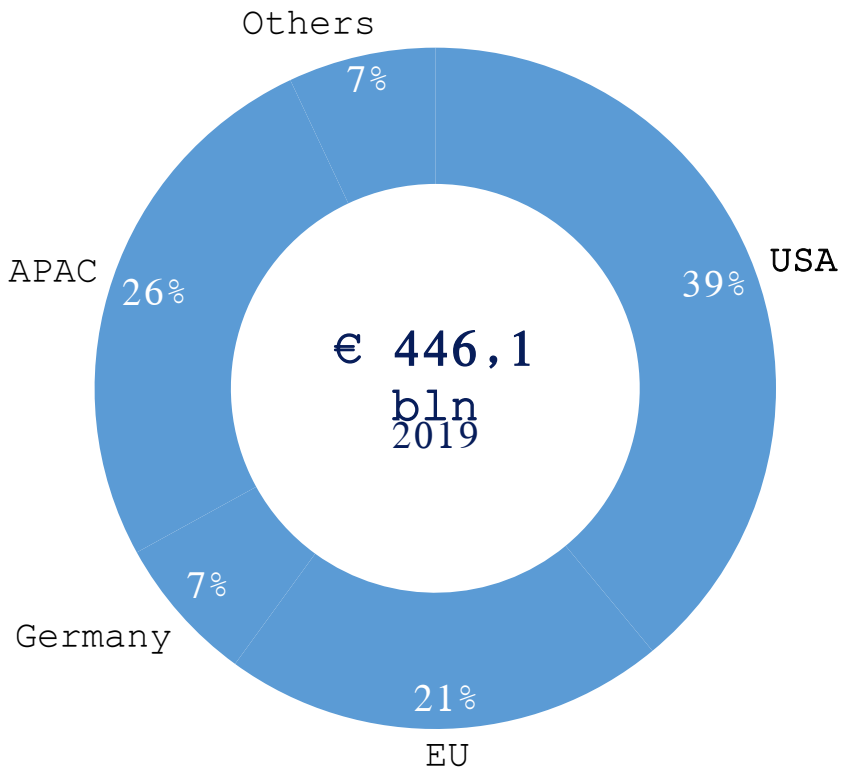
In process of treatment





# MARKET SIZE

## MEDICAL DEVICES MARKET SIZE




## MARKET GROWTH DRIVERS

1. According to the US Department of Health, the percentage of the population over the age of 60 years in the industrialized countries will rise from 23 percent to 32 percent by 2050

2. This development will happen more dynamically in the emerging markets due to the overall higher population growth and the improvements in healthcare infrastructure

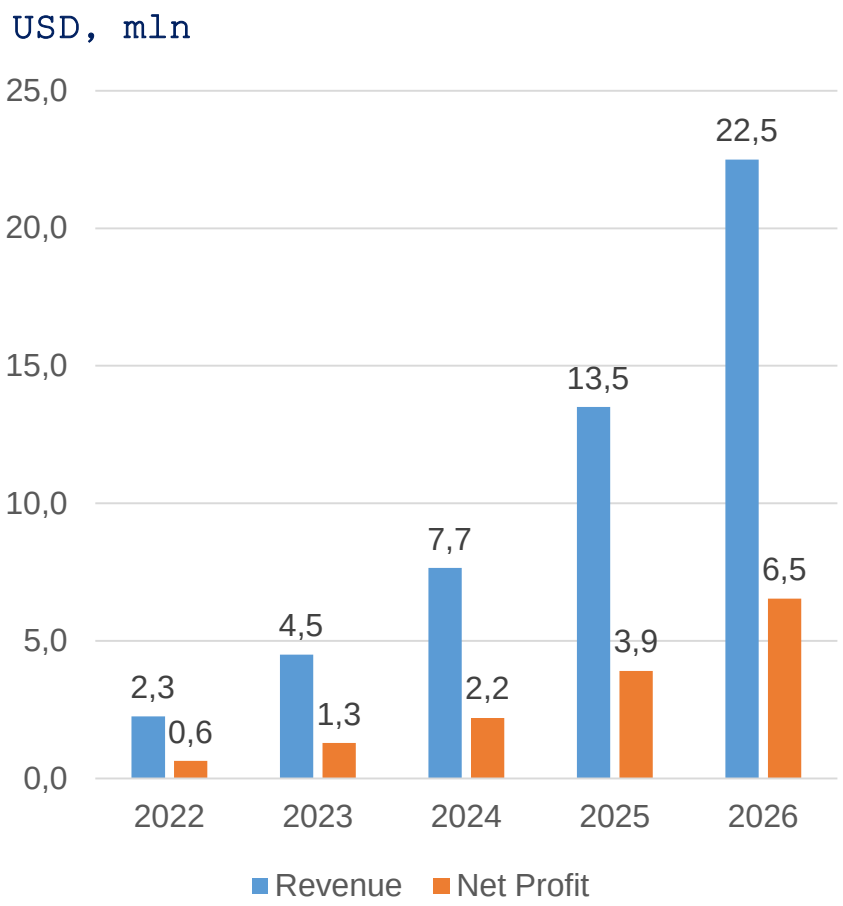
3. In 2020, the demand for medical devices has been rising most strongly in China with 1.5%, followed by Europe with 1.25%, and the US with 1%

Source:
Market Study Medical Technology 2020

# COMPETITION

| | THE "SIRIUS Medicine" DEVICE | PLASMAJET KINPEN | ATN POWER |
|---|---|---|---|
| A high-voltage generator integrated inside the device | ✓ | ✗ | ✗ |
| Tissue exposure temperature < 40°C | ✓ | ✓ | ✗ |
| Plasma jet width > 5 sq. mm | ✓ | ✗ | ✗ |
| Power 40 W | ✓ | > 40 W | > 40 W |
| Gas ionization technology | HV Nanosecond ionization | Argon | Argon |
| Use on mucous membranes | ✓ | ✗ | ✗ |

# FINANCIALS




| USD ($) | 2022 | 2023 | 2024 | 2025 | 2026 |
|---|---|---|---|---|---|
| Revenue | 2 250 000 | 4 500 000 | 7 650 000 | 13 500 000 | 22 500 000 |
| COGS | 675 000 | 1 350 000 | 2 295 000 | 4 050 000 | 6 750 000 |
| **Gross Profit** | **1 575 000** | **3 150 000** | **5 355 000** | **9 450 000** | **15 750 000** |
| Expenses | | | | | |
| Personnel | 225 000 | 450 000 | 765 000 | 1 350 000 | 2 250 000 |
| Marketing | 450 000 | 900 000 | 1 530 000 | 2 700 000 | 4 500 000 |
| Other | 48 500 | 75 000 | 110 500 | 173 000 | 267 000 |
| **Total Expenses** | **723 500** | **1 425 000** | **2 405 500** | **4 223 000** | **7 017 000** |
| EBT | 844 500 | 1 711 000 | 2 935 500 | 5 213 000 | 8 719 000 |
| Taxes | 211 125 | 427 750 | 733 875 | 1 303 250 | 2 179 750 |
| **Net Profit** | **633 375** | **1 283 250** | **2 201 625** | **3 909 750** | **6 539 250** |

# FAQ

## 01

**Why is there no widespread use of this technology since its recognition in the 90s?**

Our focus is on portable solutions, and the use of previously created solutions is burdened by the lack of compact electronic components

## 02

**What is the technological barrier? Why is it difficult to copy devices?**

It is easy to copy most of available on the market device by disassembling it. However, it is ineffective to attempt copying ours due to the unique components fitting and embedded algorithms (software, structural elements, etc.).

## 03

**Could devices cause harm to a person?**

There are no evidences that show any negative impact on health.

## 04

**Does recycling of these devices comply with environmental standards?**

Recycling of the devices is less harmful as one of a toaster or a microwave.

# INVESTMENT OPPORTUNITIES

# $ 4,000,000

**$ 1,8 mln**
IP & Equipment

**$ 2,0 mln**
Technology transfer

**$ 0,2 mln**
Licenses & Patents

**$ 56 mln**
Potential sales (2022-2026)

**$ 6,2 mln**
Prospective net profit (2026)

**$ 500 mln**
Potential value of the technology (2026)

NPV
$ 5,1 mln

IRR
70%

Terminal value
$ 87,5 mln

# IPLASMA-DE®

# WE ARE OPEN TO COOPERATION

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