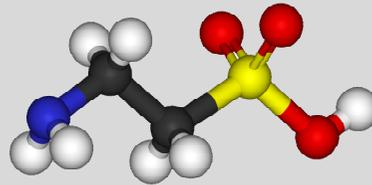


# COVID-19

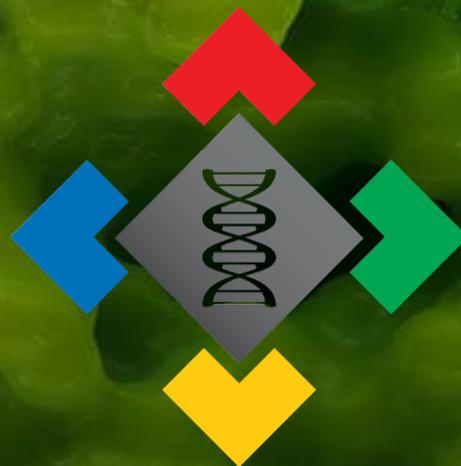
Our novel drug molecule (CCR5)



Direct economic healthcare costs  
for treating COVID-19 disease worldwide are

**\$ 1 Trillion**

# Micar21



**R&D Drug Discovery Factory  
for novel drug small molecules**

# Micar21 strength

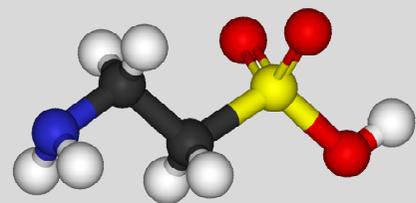


**nature**

SCIENTIFIC  
REPORTS

**Micar21 Drug Discovery platform**  
structure based in silico drug design & AI

ACS Medicinal  
Chemistry Letters



**Micar21 Pipeline**

**15 novel drug small molecules for 2Y in 6**  
therapeutic areas

# Micar21 Drug Discovery Platform



A fully integrated spectrum of expertise for rational drug discovery.

We are an early stage drug discovery and development biotechnology company fuelled by a suite of disruptive technologies to advance innovative medicines for the treatment of **COVID-19 disease** - unmet medical need.

## CCR5

An **improved**  
3D Crystal Structure

**Novel**  
Virtual Screening  
Approach

An **improved**  
FEP+

Preclinical study  
**Novel** advanced  
prediction ADMET

Pre-Clinical

IND Enabling

Phase I - IV

Marketing



← Drug Discovery process take **2 weeks**

→ ← Lead optimization up to **4 weeks** →

## What's next?

Quantity available of API-need to scale up? How much?

Fast track ADME proof of concept studies

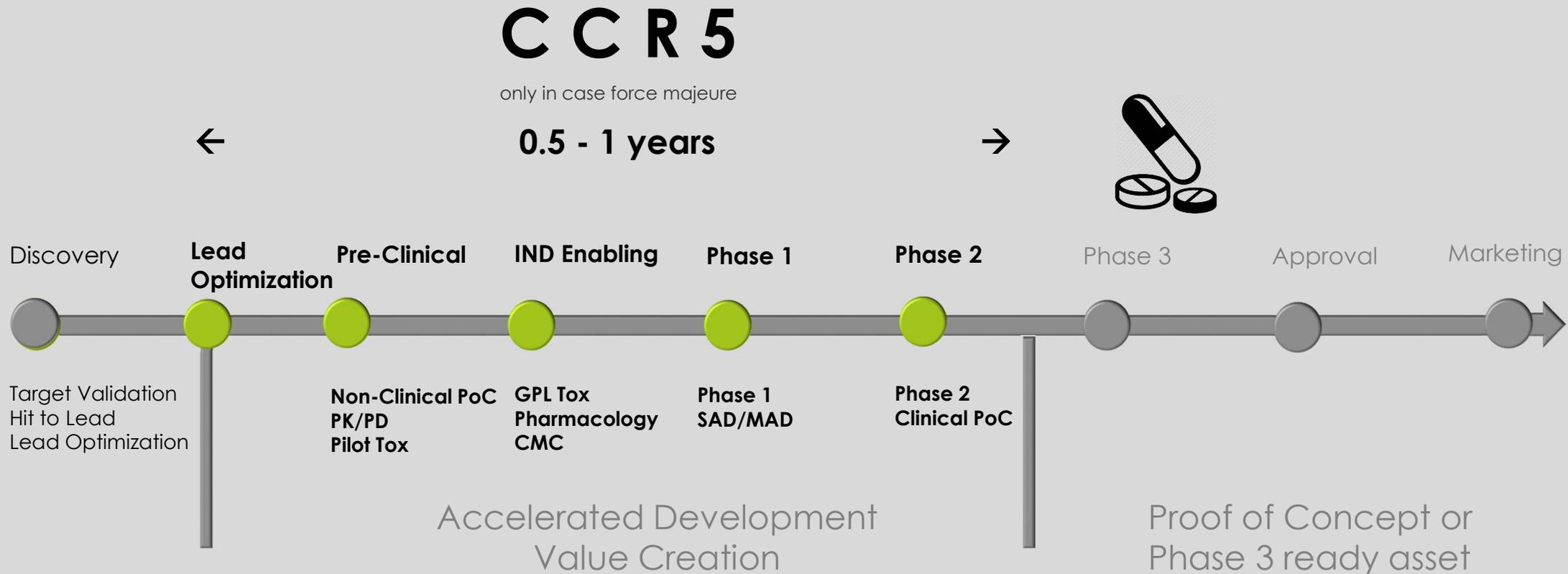
Fast track preparation of clinical protocol

Fast track preparation of first in human/ Phase I

IND (Investigation New Drug application)

# Envisaged Roadmap

Clinical proof-of-concept is a key value-creation step in the clinical development of our novel medicinal product



# COVID-19 Cured by Micar21



## Cure for world COVID-19 health problem

**MIC7777 CCR5 – COVID-19** (Lead optimization)

- Put Bulgaria on the world health map
- Bulgaria solves the current pandemic world health problem
- COVID-19 cured by Micar21

## Micar21 Pipeline

MIC4578 Chronic Pain (Preclinical)

MIC9211 Alcoholism: AUD (Lead optimization)

MIC6479 Pancreatic Cancer (Preclinical)

MIC6701 Colorectal cancer (Lead optimization)

MIC2091 Cardiomyopathy (Hit to Lead)

MIC8411 Melasma(Hyperpigmentation) (Preclinical)

MIC2211 Hyperekplexia (Hit to Lead)

MIC2231 Stiff PS (Hit to Lead)

MIC2634 Iminoglycinuria (Hit to Lead)

MIC8471 Acne (Preclinical)

MIC5002 Cardiovascular (Preclinical)

MIC5022 Psoriasis (Preclinical)

MIC5126 Arthritis (Preclinical)

MIC1045 Oncology metastasis

MIC1936 Longevity

Our scientific data, backed by our results



Micar21

CCR5 data from ThermoFisher Scientific

**ThermoFisher**  
S C I E N T I F I C

CCR5 data from Eurofins



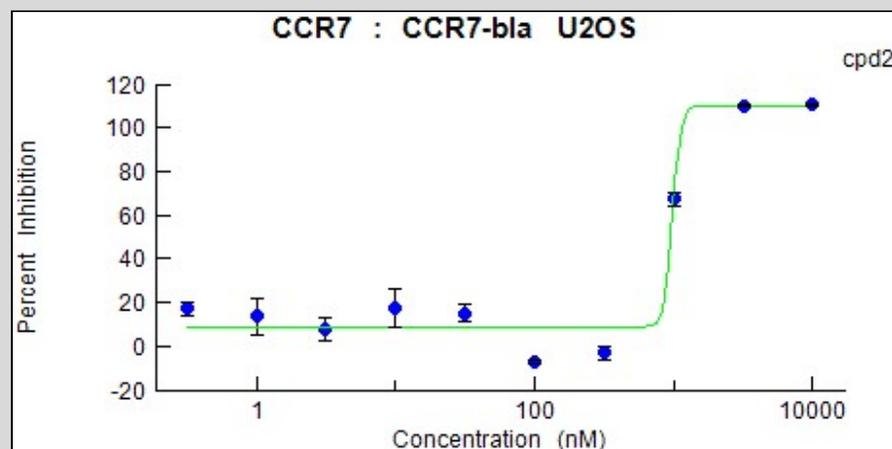
# Our scientific data, backed by our results



Micar21

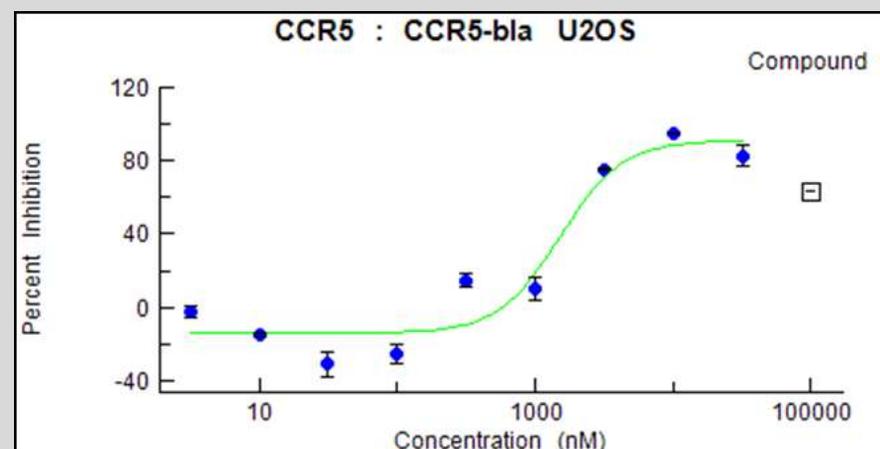
Thermo Fisher Scientific's SelectScreen™ Profiling Service: 10-point Titration Antagonist Results ( $\beta$ -arrestin binding assay)

Series of biological tests showed that Lead 1 (cpd2) is an antagonist of CCR7; No any agonist activity was detected



$IC_{50} = 980 \text{ nM}$

Series of biological tests showed also that Lead 1 (compound 1) is an antagonist of CCR5



$IC_{50} = 1.9 \mu\text{M}$

*Nano and micro molar activity have been detected for CCR7 and CCR5 respectively*

## CCR5/7 antagonists – Lead1

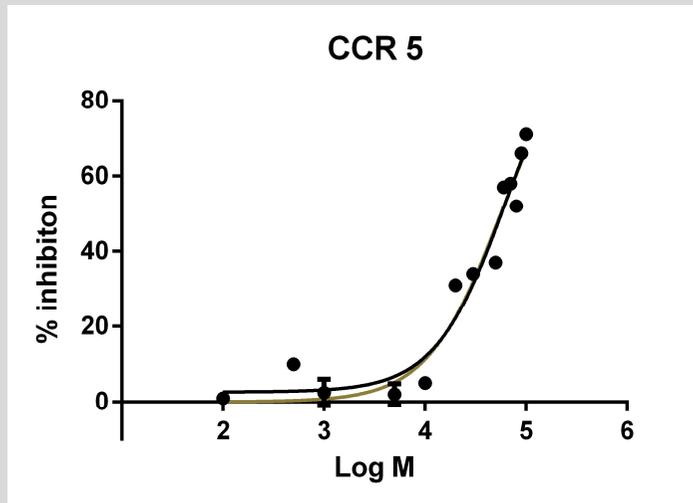
# Our scientific data, backed by our results



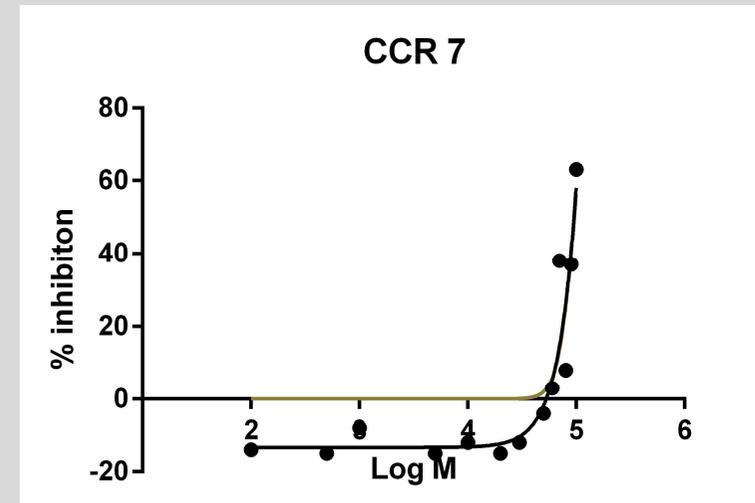
Micar21

EuroFines Ca<sup>+</sup> mobilization and cAMP assays proved that the our lead compound has a biological response

*cAMP response of lead1 to CCR5*



*Ca<sup>+</sup> response to CCR7*



*Micro molar activity have been detected for CCR7 and CCR5 respectively*

## CCR5/7 antagonists – Lead1

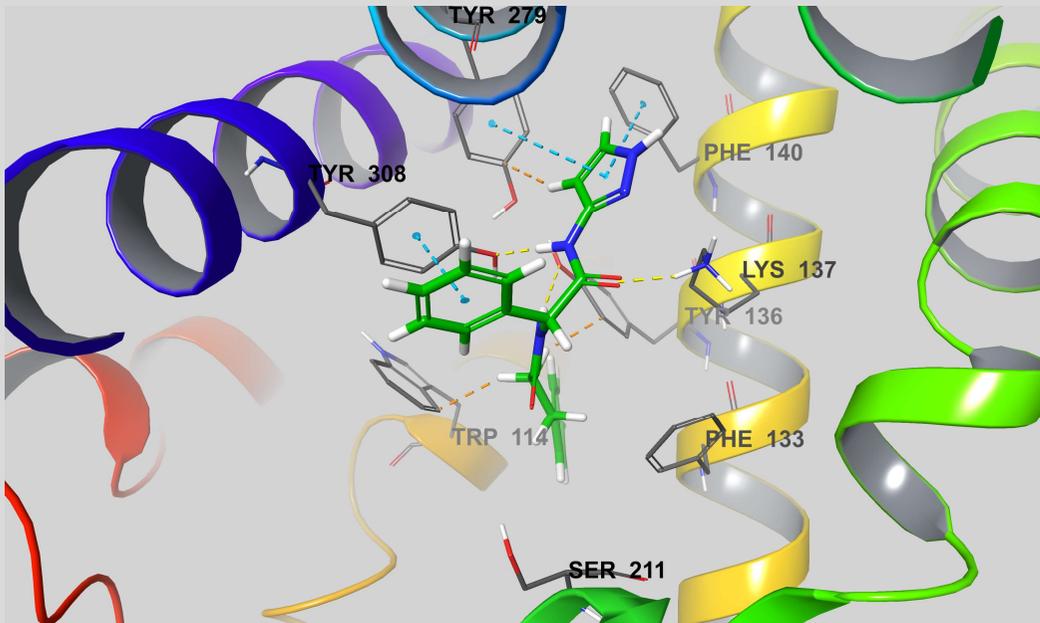
# Our scientific data, backed by our results



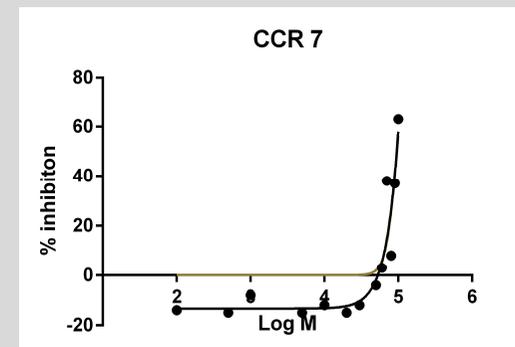
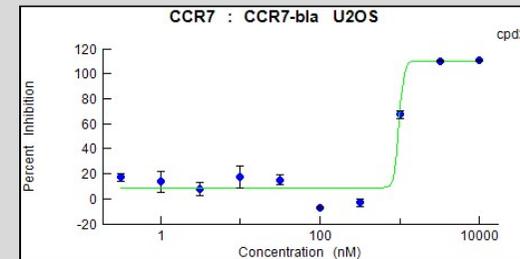
# Micar21

The intensive molecular modelling and biological data indicate **that lead 1 is unique**; binds to both ortho and allosteric sites

*Binding mode of one of the compounds to CCR7*



*Dose-response to CCR7*



*Hill coefficient greater than **15** and **7** were obtained for  $\beta$ -arrestin binding and  $Ca^{+}$  assays*

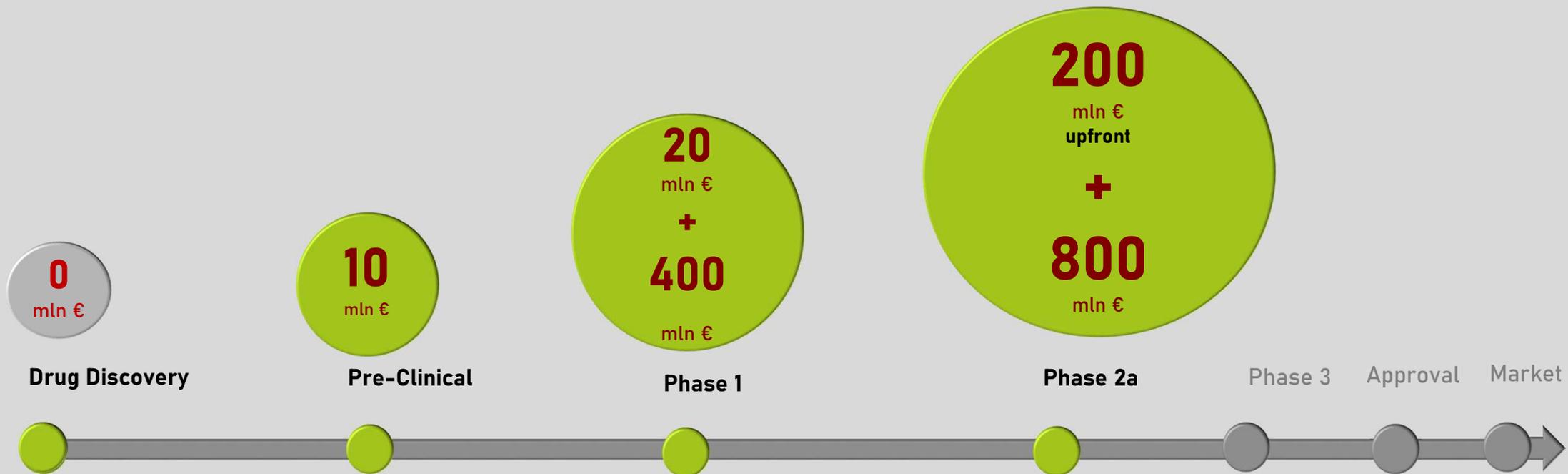
## CCR5/7 antagonists is unique

# Business Model & Roadmap



I. Discovering and developing novel drug candidate from Scratch till Preclinical phase with Non-Clinical "PoC" and then **Licensing/Exit** or founding new spin out company.

II. Discovering and developing drug molecule until **Phase 2a "PoC"** and then **Licensing/Exit**



>30 scientific publications



nature

SCIENTIFIC  
REPORTS

ACS Medicinal  
Chemistry Letters

PCCP

Physical Chemistry Chemical Physics



J | A | C | S  
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY

JOURNAL OF  
CHEMICAL INFORMATION  
AND MODELING

International Journal of  
Molecular Sciences

molecular  
pharmaceutics

PROTEINS  
STRUCTURE • FUNCTION • BIOINFORMATICS

BMC  
Structural Biology



# World analytic reports



**Micar21, is one of the world's 130 companies in**  
*Deep Knowledge Analytics report.*

**AI for Drug Discovery Landscape 2018, 2019, 2020**

Source: <https://www.dka.global/>

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**Micar21, is one of the world's 198 companies in**  
*Roots Analysis Study report.*

***"In Silico/Computer-Aided Drug Discovery Services Market 2020-2030"***

Source: [https://www.rootsanalysis.com/reports/view\\_document/in-silico-drug-discovery/298.html](https://www.rootsanalysis.com/reports/view_document/in-silico-drug-discovery/298.html)

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**Micar21, is one of the world's 250 companies in**  
*Roots Analysis Study report.*

***"Computer-Aided Drug Discovery Services Market 2018-2030"***

Source: [https://www.rootsanalysis.com/reports/view\\_document/computer-aided-drug-discovery-services-market-2018-2030/207.html](https://www.rootsanalysis.com/reports/view_document/computer-aided-drug-discovery-services-market-2018-2030/207.html)

# Intellectual property



**Intellectual property is the cornerstone of our business and keeps the business more than 20 years unique and profitable.**



Details for our IP's you can talk with IP lawyer companies

7 awards for 2 Y



**Investor of the  
year 2018**



**Innovative Enterprise of  
the Year**

**Best Biotech Startup**

# Team & memberships



## SENIOR SCIENTIFIC LEADERSHIP

### Filip Fratev

CSO, Co-Founder

Scientific Memberships: American Chemical Society, The Royal Society of Chemistry, The American Society for Biochemistry and Molecular Biology

## MANAGEMENT TEAM

### Dimitar Dimitrov

CEO, Co-Founder

Chairman Of Management Board **Health & Life Sciences Cluster Bulgaria** /

*Inspirer, Initiator & Founder of Health & Life Sciences Cluster Bulgaria ([www.BioCluster.bg](http://www.BioCluster.bg)) /*

Member Of The Management Board **AI Cluster Bulgaria** /

*Inspirer, Initiator & Founder of AI Cluster Bulgaria ([www.AIBulgaria.bg](http://www.AIBulgaria.bg)) /*

Member Of The Management Board **BRAIT** - Bulgarian Association of Innovation & Technology /

Member Of The Supervisory Board **Bulgarian Bioscience Society** /

### Veska Tzvetanova

CIO

### Nikolay Tzvetanov

CIO

**Thank you for your attention!**



**Micar21**

**We are here to listen.**



*small molecule is the key*

**Dimitar Dimitrov**  
CEO & Co-Founder  
[www.micar21.com](http://www.micar21.com)  
[dimitar@micar21.com](mailto:dimitar@micar21.com)