



MetaNovas Biotech

**AI-Driven Novel
Ingredient Development
and Product Solutions**

www.metanovas.com



ABOUT US

MetaNovas Biotech is an innovative biotechnology company founded by MIT scientists in early 2021 and is headquartered in Mountain View, California. Our mission is to deliver safe and effective ingredients that provide genuine health benefits to consumers worldwide. We are dedicated to becoming a global leader in AI-driven ingredient and product design and development platforms, leveraging cutting-edge technology to advance the field of biotechnology.

Since our inception, MetaNovas has made significant strides in research and development, earning international recognition and prestigious awards. Notably, we are the proud winners of the “L’Oréal Big Bang Beauty Tech Challenge”, highlighting our commitment to excellence and innovation in the beauty and health sectors. Our collaborations with top-tier clients across the globe underscore our reputation for delivering high-quality, effective solutions.

At MetaNovas, our team combines expertise in biotechnology, artificial intelligence and product development to create innovative solutions that meet the highest standards of quality and not only meet current market needs but also establish new industry standards.

 **DIGITAL
JOURNAL**

**BUSINESS
INSIDER**

Bloomberg

BENZINGA

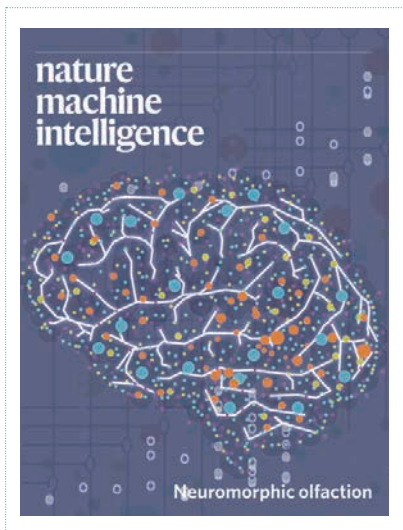
yahoo!
finance

MarketWatch

Awards and Honors



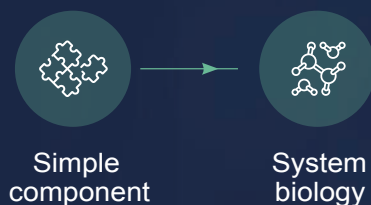
Our Publications



Clients We Served



Technical Platforms



MetaNLP® : Proprietary fine-grained NLP text mining for scientific literature and patents

— Distill human knowledge to structured data



MetaKG® : Ultra-large biomedical knowledge graph with graph models to uncover hidden relations

— Accelerate knowledge discovery and product development



MetaPep® : Function-based and target-based peptide design with deep learning and molecular dynamics

— Accelerate ingredient development with a high success rate



MetaOmics® : Huge multi-omics data with various advanced analytical methods

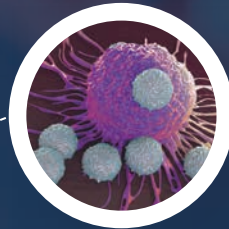
— Enable precision product development through population segmentation

R&D success

Increase to over **45%**



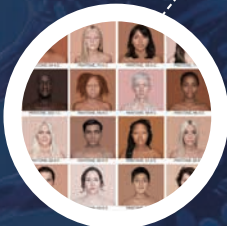
Biological Mechanism
Discovery



Ingredient
Discovery and
Design



Demographic
Differences



**R&D
services**

Formulation
Design



Supplier
Recommendation



R&D cycle

Reduce from **months**
to **weeks**



01

Identify biological targets with AI knowledge graphs

02

Unlock connection to health functions

03

Optimized extraction using ionic liquids

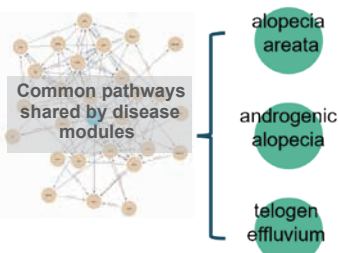
Natural Product Discovery

Case 1: Discover hair growth promoting natural compounds

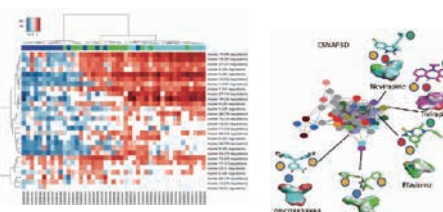
Client : A beauty brand

Goal : Identify ingredients that promote hair growth and have never been reported in the literature for hair growth before

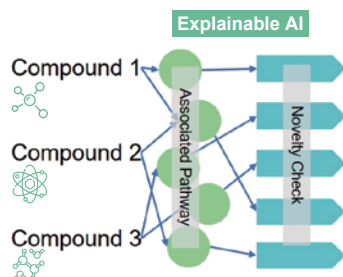
MetaKG identifies critical pathways for intervention



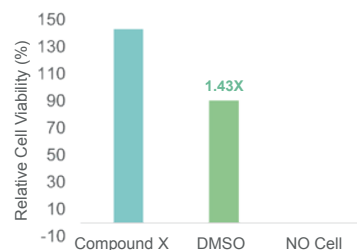
MetaKG predicts potential ingredients affecting desired pathways



Top ranked ingredients



Among the top 5 ranked compounds, we identified compounds that can promote the growth of human DPCs.

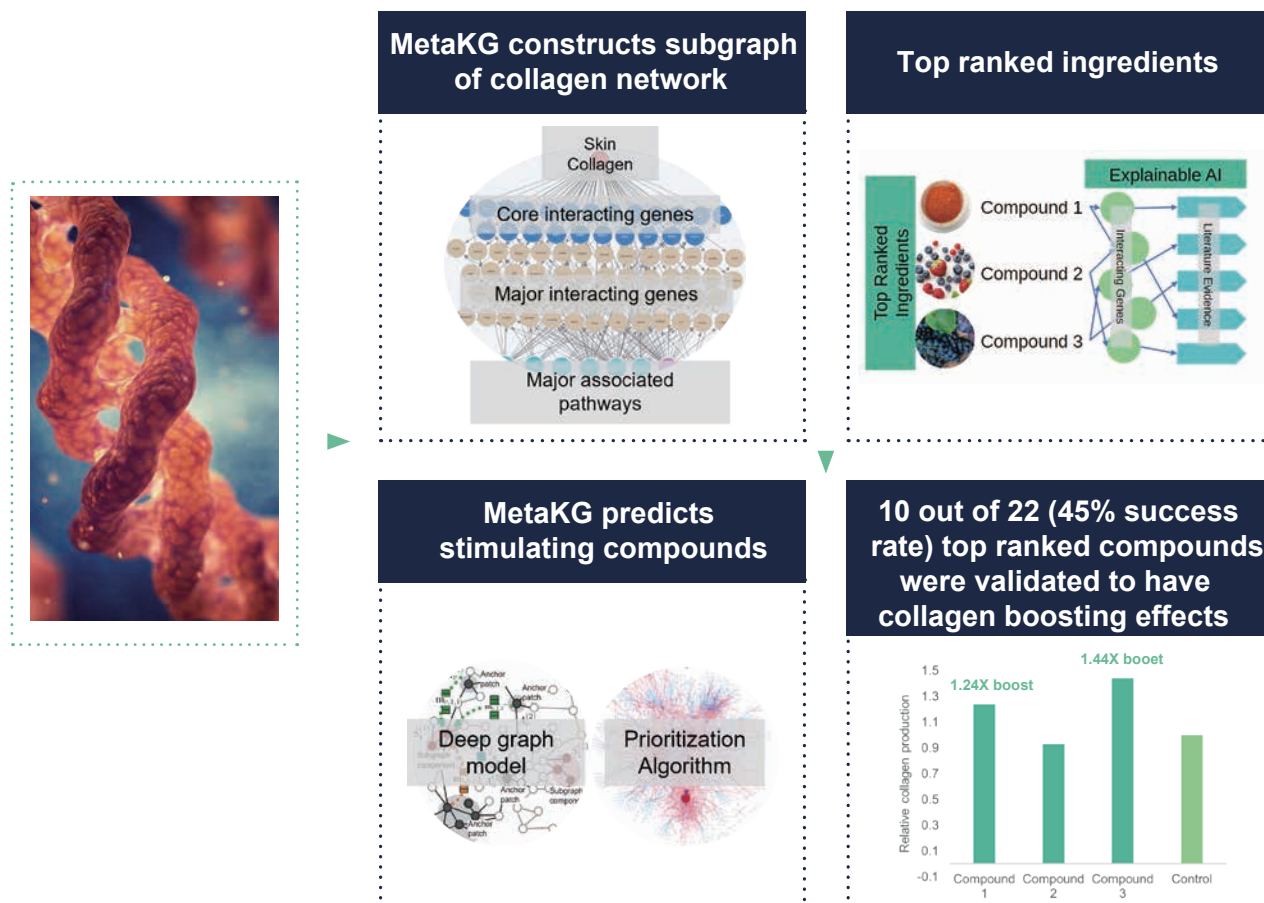


Natural Product Discovery

Case 2: Discover collagen-boosting natural compounds

Client : A beauty brand

Goal : Identify ingredients that could boost certain type of collagen synthesis



We use ionic-liquid-based extraction for efficient and environmentally friendly production of natural product extracts



01

Identify biological targets with AI knowledge graphs

02

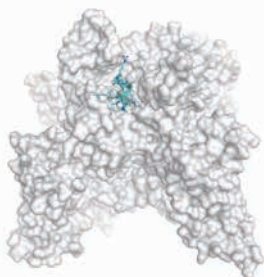
GenAI for novel structure generation

03

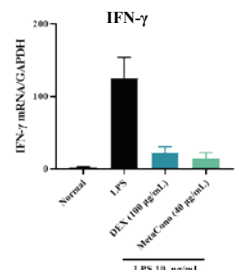
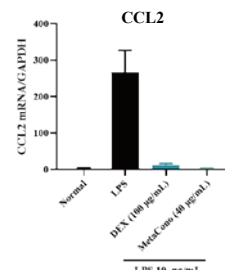
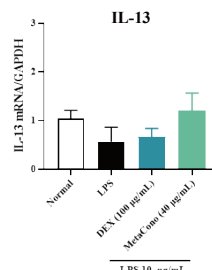
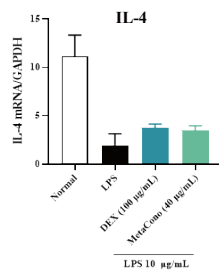
In vitro - in silico loop for property optimization

Novel Molecule Design

Case 1: MetaCono -- targeting sodium channels for anti-aging

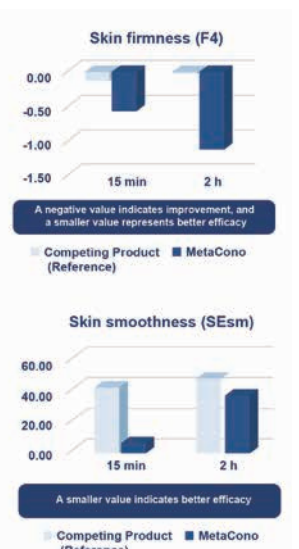
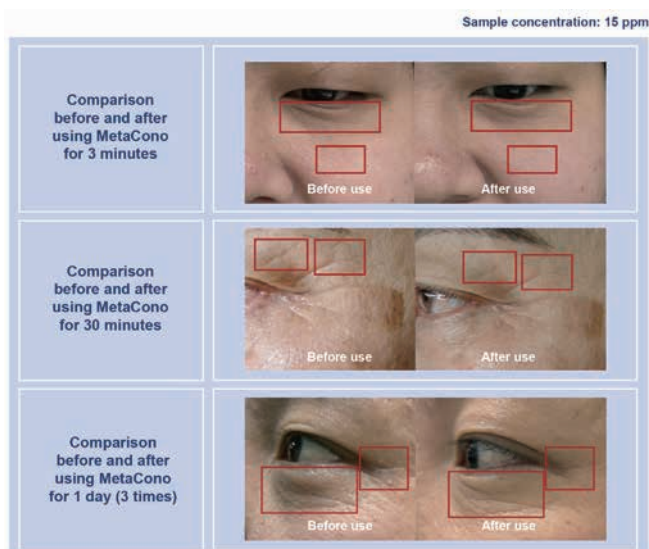
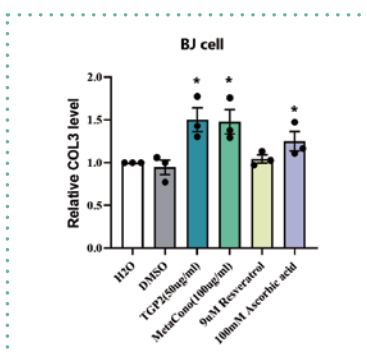


Sodium channel 1.7



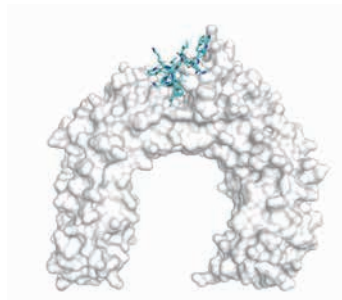
Reduce pro-inflammatory cytokines and promote anti-inflammatory cytokines

Promote collagen III expression

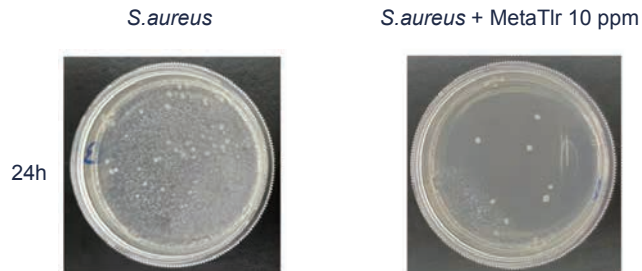


Novel Molecule Design

Case 2: MetaTlr -- targeting Toll-like receptors for anti-inflammaging



Toll-like Receptor

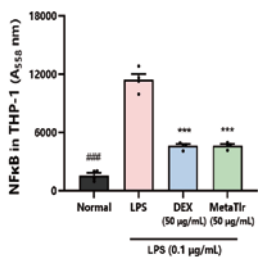


24h

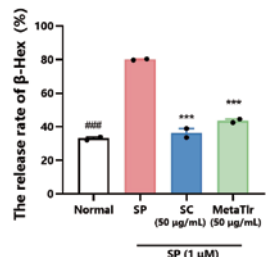
Inhibit *S. aureus* at low concentration

Reduce inflammation caused by various external and internal stressors

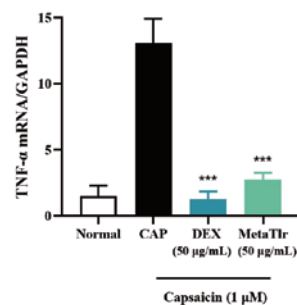
NFκB induced by LPS



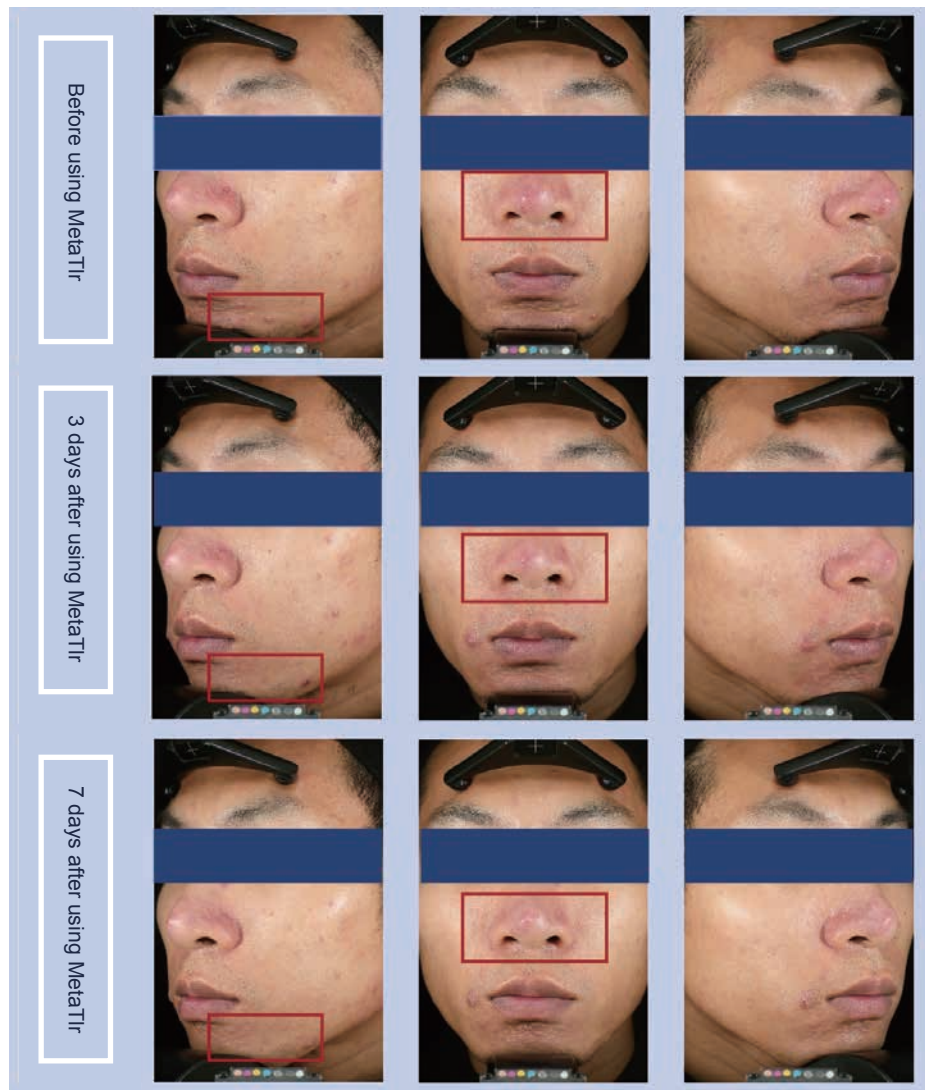
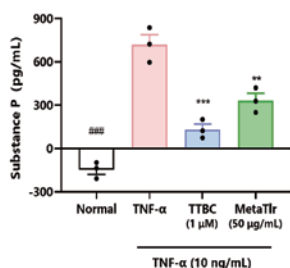
β-Hex induced by Substance P



TNF-α induced by capsaicin



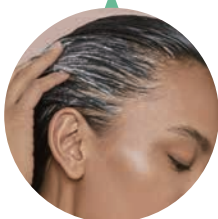
Substance P induced by TNF-α



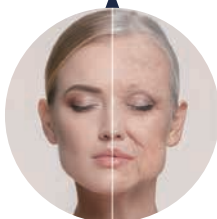
MetaTlr relieves acne condition with 90.91% of respondents reporting a reduction of acne after 7 days of use.

New Ingredient Development Pipeline

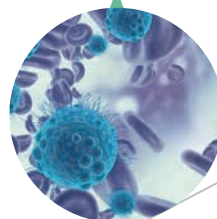
Scalp Health



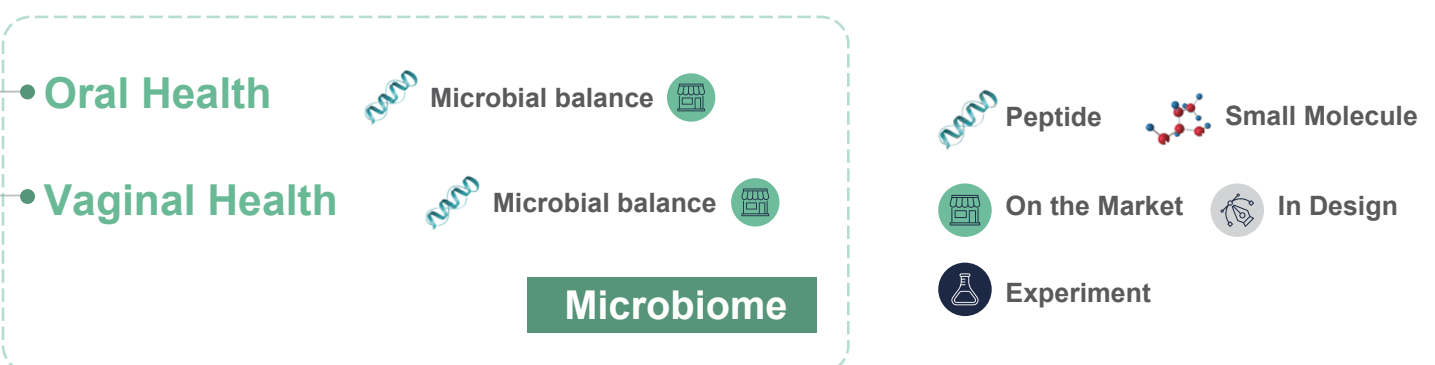
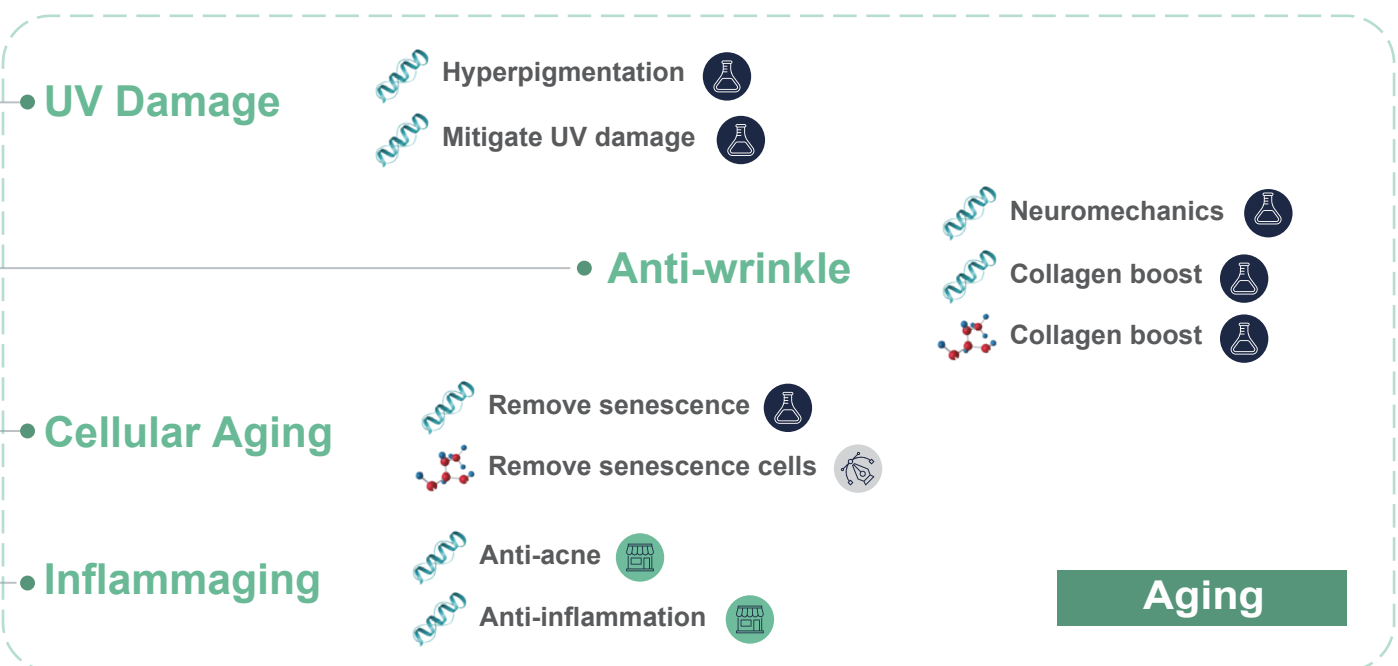
Aging



Microbiome



We have a wide array of innovative ingredients in our development pipeline. We are open to collaboration, co-development, and future sales opportunities with interested partners. For any inquiries or to explore potential partnerships, please contact us at bd@metanovas.com.



MetaNovas Biotech

“ We look forward to your next breakthrough,
——starting with MetaNovas. ”

Contact: bd@metanovas.com

