



NAWAH
scientific

Redefining partnership
in drug discovery

www.nawah-scientific.com

Life Sciences Research Unit

Pharmaceutical Industry Unit

Food & Environment Unit



Redefining Partnership!



Dear valued partner,

Working in the field of drug discovery & development for the past 18 years, I learned a thing or two about what a “true partnership” actually means. At Nawah, we believe that true partnership is much more than just doing business together. It is caring about the success of our partners as if it was our own. It's sharing the worry, the tightness of deadlines, the pain of failure and negative results.

We have designed your experience with Nawah to express this vision. You will feel it in every step since your first email. You will feel it with a dedicated account manager catering for your project. You will feel it as we give you direct access to the scientist doing your experiments, so you get to feel what's happening with your samples. What we deliver is a whole experience and not just a test report.

We understand that your needs and goals are unique, and we are ready to tailor our solutions to meet them. We value your feedback and input, and we look forward to collaborating with you on your projects.

Thank you for joining us on this journey. We are honoured to have you as our partner.

Sincerely,

Omar Sakr, PhD, MBA

Founder | CEO

What is Nawah Scientific?

Headquartered in Amsterdam and present in Africa and Asia, Nawah is one of MENA's biggest private multidisciplinary research centers, catering for natural and medical sciences. Nawah is a core hub of advanced research facilities that offers its services online and on demand. Nawah's online platform receives experiments requests, Nawah's scientists carry them out and return results online. Our state-of-the-art research facilities are spread amongst 3 countries and are led by a team of bright postdocs and experts graduating from top world class universities. Among other industries, we serve companies working in the fields of drug discovery and drug development.

8

Years old

500K+

Samples analyzed

5500+

Clients served

15

Countries



The “True Partner” benefits

It's more than sending you a test report!



Quality guarantee

We take the quality of our work very seriously, we use internal and external controls, and we refund any fees if a mistake was proven.



Experienced scientists

Top caliber team, 25 PhD holders graduating from top world universities leading a 150+ team of scientists.



Fast delivery of results

We value your time and we manage our queues to get back to you ASAP.



A dedicated account manager

We want you to make sure we are reachable at any point of working hours. You will be updated regularly with the progress of your samples



Direct access to the scientist performing your experiment

You and him/her can share thoughts, notes and all the small details that might not be captured in a report.



Your raw data is yours!

Be 100% sure of the authenticity of our work, check the raw data and double check all details.

YOUR PARTNER ACROSS THE VALUE CHAIN OF DRUG DISCOVERY



Chemistry

Design, synthesis and analysis



Biology

Activity assays and mechanistic studies



Formulation

The right formula for the right application



In vivo animal studies

Get to know what actually works


Chemistry

Custom organic synthesis

You design, we execute

Synthesis

Looking for a special chemical compound that is not on public lists?

Nawah team of PhD holders in Organic Synthesis are experts in classical and modern organic techniques, which include but not limited to, organometallics, metal-catalyzed reactions, building fused/heterocyclic systems, parallel synthesis, and peptides synthesis.

Our modern facilities in separation techniques (automated flash chromatography and prep. HPLC) guarantees the utmost purity of your compounds. We also offer full characterization of new chemical entities (MS, NMR, IR, XRD, thermal analysis, elemental analysis....)

Analysis

HPLC (DAD, UV, RI)

- Method development and validation
- Dissolution assay
- Drug degradation analysis

GC-FID, GC-MS

- Natural products standardization
- Volatile oil analysis
- Fixed oil analysis

LC/MS, LC-QTOF/MS and ICP/MS

- Metabolite analysis
- Pharmacokinetic studies
- Analysis of minerals and heavy metals



Activity assays and mechanistic studies

Cell-Based Assays

Cytotoxicity assays

- SRB assay
- MTT assay
- WST-1 assay
- Hypoxic cytotoxicity assay
- Readily treated flasks

Cell migration (Wound healing) assay

Qualitative and quantitative determination of drug effects on cell migration.

Cellular drug uptake assay

Qualitative and quantitative determination of drug uptake intracellularly using fluorescent microscopes, flow cytometry and HPLC.

Caco-2 permeation model

Quantitative determination of drug absorption & permeation through a barrier of Caco-2 cells.

Anti-inflammatory assay

- Using RAW 264.7 macrophage cells
- Nitric Oxide inhibition, Inflammatory biomarkers suppression and iNOS expression

P-glycoprotein (P-gp) inhibition assay

- One of the mechanisms of reversal of MDR
- Cellular pharmacokinetics studies of drugs in combination with entrapment enhancers

Flow cytometric assays

- Cell cycle analysis
- Apoptosis/necrosis assessment
- Quantitative autophagy assessment
- Surface marker detection & quantification

Surface markers

Detection of several specific surface markers such as CD24, CD44 and others on cancer and stem cells using flow cytometry

Cell-Free Bio Assays

- Choline esterases inhibition assays
- Alpha-glucosidase inhibition assay
- Alpha amylase inhibition assay
- Pancreatic lipase inhibition assay
- COX-1&2 inhibition assays
- Assays for anti-inflammatory markers
- Assays for tumor markers
- Assays for anti-oxidants



Stem Cells Based Assays

Stem cells isolation and characterization

- Culture and propagation of mesenchymal and hematopoietic stem cells for different passages
- Bone marrow, adipose tissue and peripheral blood derived stem cells
- Available from different species (mice, rats, cats, dogs)
- Stem cells characterization (microscopy and surface markers)
- Stem cells quantification and viability assessment

Stem cells bioassays

- Study the effect of drugs, cytokines, growth factors or toxins on cultured stem cells in terms of growth and morphology

Exosomes isolation and characterization

- Exosomes purification, quantification, and characterization
- Exosomes can be used in drug loading, regenerative medicine and several other applications

Exosomes as nano drug delivery systems

- Exosomes are naturally occurring nanocarriers.
- Highly biocompatible
- Have the ability to bypass biological barriers (e.g. blood brain barrier)
- Offers cargo protection from degradation
- Enjoy a natural homing mechanism that helps in drug targeting
- We can provide readily loaded and characterized exosomes (loaded with Vincristine, Doxorubicin, Capecitabine, Cinnamaldhyde, among others)



Molecular Biology Assays

Genetic expression analysis

- Gene expression analysis based on the mRNA level
- Gene expression analysis based on the protein level
- Quantitative and semi-quantitative data presentation

Nucleic acid assays

- mRNA extraction and cDNA synthesis
- Nucleic acid quantification and purity check by nanodrop technique
- Polymerase Chain Reaction (PCR)
- Gel electrophoresis, documentation with band densitometry (semi-quantitative)
- Real-Time Polymerase chain Reaction (qPCR) with mathematical quantification (fold change calculation)
- Long list of primers is available
- New primers can be designed and synthesized on demand
- Professional data presentation/interpretation

Micro RNA extraction and quantification

- MicroRNA are intracellular gene expression regulators (feedback molecules)

Protein assays

- Protein extraction and quantification from different sources (cell lines, tissues, etc.)
- Protein SDS-PAGE and staining
- Coomassie blue and silver staining
- Transfer to nitrocellulose or PVDF membrane
- Immunological staining (Western Blotting)
- Long list of antibodies is available (and growing)
- Immunological detection of proteins and phosphorylated proteins
- Band density determination and quantification
- Professional data presentation/interpretation

Molecular Microbial Identification

- Sequencing service for identifying genes for isolated microbial species
- DNA extraction of microbial isolates
- Sequencing of short amplicons.



Virology

Antiviral assays

- High pathogenic viruses (SARS-CoV-2, MERS-CoV...etc)
- Low pathogenic viruses (A/H1N1, H3N2, Herpes simplex virus, Coxsackie B virus, Hepatitis A virus...etc)
- Crystal violet and plaque reduction assays (quick screening, IC₅₀ and EC₅₀)
- Antiviral mode of action determination

Mechanism of antiviral activity

- Viral adsorption inhibition
- Viral replication inhibition
- Direct virucidal effect

Viral detection in environmental samples

- Detection in pooled insects, ticks...etc
- Influenza viruses, Alphaviruses, Flaviviruses, Poxvirus, Phleboviruses and Filoviruses

Food born viruses detection

- Noroviruses, Hepatitis A&E, Enteroviruses, and Rotaviruses

Waterborne viruses detection

- Adenoviruses, Astroviruses, Hepatitis A&E, Noroviruses, and Enteroviruses

Viral load determination

- Viral load quantification & taxonomic identification
- Viral DNA & RNA extraction
- Identification of taxa
- Primer design and RT-qPCR for RNA and DNA samples
- qPCR for virus load quantification

Microbiology

Anti-Bacterial and fungal Assays

- Minimum Inhibitory Concentration (MIC)
- Minimum Bactericidal Concentration (MBC)
- Anti virulence assay (Anti-biofilm)
- Well diffusion assay
- Disc diffusion assay
- Bacterial identification
- Time killing assay
- Anti-bacterial effect on resistant microorganism (MRSA & *P. aeruginosa*)
- Provide reference bacterial strains (from Nawah library)



The right formula for the right application

Nano Drug Delivery systems

We can help you with custom synthesis of the most appropriate nano drug delivery system that can host your drug of choice and matches the needed use and route of administration.

Nanotechnology team can help to provide tailored tools for solubility enhancement of insoluble drugs, targeted drug delivery purposes, achievement of improved pharmacokinetic profiles, stabilization of labile drugs and enhancement of local or systemic bioavailability.

Range of expertise:

- Polymeric nanoparticles (e.g. PLGA, PLA, Dendrimers, ...)
- Vesicular delivery systems (e.g. Liposomes, niosomes, proniosomes, ...)
- Lipid based systems (Solid lipid nanoparticles (SLNs), Nanostructured lipid carriers (NLCs), Nanoemulsions,...)
- Inorganic nanoparticles (Gold, silver, iron, silica, ...)
- Nanogels

Characterization & measurements

- Measurement of particle size, zeta potential and isoelectric point
- Measurement of entrapment efficiency
- Measurement of in vitro release profiles
- Measurement of nanomaterial skin deposition and permeation



Animal studies

In vivo Animal Studies

Experimental models

- Acute models (Gastric ulcer, Anti-inflammatory, hepato and kidney protective... etc)
- Chronic models (liver fibrosis, metabolic syndrome, Diabetes Miletus....etc)
- In vivo cancer models (chemical induced, or cell line inoculation)

Acute/ chronic toxicity studies

- LD50 determination
- Therapeutic dose determination
- Safety studies on different organs (histopathology and biochemical)
- Gross necropsy test

Biomarkers

- Inflammatory markers (IL-6, TNF-alpha, IL-10, IFN-gamma, NFkB, PTGS/COX-1)
- Apoptosis markers (Caspase 3, Bax, Bcl-2)
- Angiogenesis markers (MMP9, VEGF-A)

Pharmacokinetics studies

- Available on rats and mice
- Oral, IP, SC and IV administration routes
- Drug quantification (LCMS, DAD)
- Plasma pharmacokinetics and tissue distribution (including sub-CNS loci)
- Semen analysis, urine collection and analysis

Pathology

- Paraffin embedding and sectioning
- Regular staining
- Special stains (Masson Trichrome, Sudan-III, Toluidine blue...etc)
- Immunohistochemistry
- Immunocytochemistry
- Comet assay
- Mammalian bone marrow chromosome aberration test
- Erythrocyte micronucleus test

We Proudly Served



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