

NBIIC-HI

Nanomedicine, Bioconjugation & Translational Research Technical Service

Catalogue

China-Based Technical Collaboration Platform

In collaboration with Nankai University–related nanomedicine expertise and

Tianjin Coupling Biomedical Technology Co., Ltd.

For Research Use Only. Not for Clinical Diagnostic Use.

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1. Platform Overview

NBII-C-HI collaborates with China-based nanomedicine and bioconjugation technical partners to support international translational biomedical research, early-stage innovation, preclinical validation, and research-use-only product development.

Through this collaboration, NBII-C-HI integrates international project design, clinical problem identification, translational strategy, scientific writing, partner coordination, and commercialization planning with advanced experimental execution capabilities in China.

The technical platform focuses on nanomedicine, drug delivery, bioconjugation, LNP/RNA delivery, exosome engineering, smart biomaterials, molecular imaging, preclinical animal studies, customized synthesis, analytical testing, and customized research-use-only detection kit development.

Tianjin Coupling Biomedical Technology Co., Ltd. is described as a biotechnology company integrating research and development, production, technical services, and sales, with a focus on nanomedicine, molecular biology, translational medicine, and multidisciplinary biomedical research. Its platform includes molecular biology, flow cytometry, microscopy imaging, small animal imaging, ultrastructural pathology imaging, histopathology, proteomics, metabolomics, high-throughput drug screening, and high-performance computing capabilities.

2. Mission of the Collaboration

This collaboration aims to help academic laboratories, hospitals, physician-scientists, biotech startups, and early-stage translational research teams transform scientific concepts into publishable, fundable, and potentially translatable biomedical projects.

The platform is designed to support:

- Translational biomedical research
- Nanomedicine-based project development
- Drug delivery system design
- Preclinical validation
- Molecular imaging and biodistribution studies
- RNA delivery research
- Exosome engineering
- Smart biomaterial development

- Customized RUO research kit development
- SCI manuscript and grant-oriented data generation
- International research collaboration

3. Core Technical Areas

3.1 Nanomedicine & Drug Delivery

The platform supports the design, preparation, characterization, and validation of nanomedicine-based delivery systems for small molecules, peptides, proteins, nucleic acids, and other therapeutic or research molecules.

The platform may support research involving:

- Nanoparticle-based drug delivery systems
- Targeted drug delivery
- Controlled-release delivery systems
- Organic nanomaterials
- Inorganic nanomaterials
- Polymeric nanomaterials
- Bio-derived nanomaterials
- Tumor-targeted delivery
- Inflammation-related delivery
- Immune-modulating delivery systems
- Local and systemic delivery strategies
- Delivery of small-molecule drugs
- Delivery of proteins and peptides
- Delivery of nucleic acids
- In vitro and in vivo delivery validation
- Nanomaterial biosafety evaluation

The uploaded technical profile specifically describes nanodrug carriers as a key research direction, including the use of inorganic, polymeric, and bio-derived nanomaterials for targeted

delivery of small molecules, proteins, peptides, and nucleic acid therapeutics.

3.2 Nanovaccines & Immunotherapy

The platform supports immune engineering and biomaterial-based immunotherapy research.

Service and project directions may include:

- Nanovaccine design
- Biomaterial-based immune modulation
- Cancer immunotherapy support
- Infection-related immune research
- Inflammation-related immune regulation
- Autoimmune disease-related immune modulation
- Aging-related immune research
- Immune activation strategies
- Immune suppression and tolerance-related strategies
- Tumor microenvironment modulation
- Macrophage polarization research
- Dendritic cell activation research
- Antigen delivery system development
- Combination immunotherapy validation

The technical profile describes nanovaccines and immunotherapy as a major direction, focusing on biomaterial-based regulation of immune responses for cancer, infection, inflammation, autoimmune disease, and aging-related conditions.

3.3 Fluorescent Probes & Bioanalytical Detection

The platform supports fluorescent probe development and bioanalytical detection methods for biomedical research.

Service scope may include:

- Fluorescent probe design
- Fluorescent labeling
- Probe validation

- Signal molecule detection
- Biomarker detection
- High-sensitivity detection platform development
- High-specificity detection platform development
- Reproducible biochemical detection methods
- Cell and molecular tracking
- Research-use biomarker assay development
- Probe-based detection method optimization

The platform profile states that fluorescent probes and bioanalytical detection are used to develop sensitive and specific biochemical analytical platforms for detecting biological molecules and supporting early diagnosis-related research.

3.4 Molecular Imaging & Multimodal Imaging Probes

The platform supports molecular imaging probe development and preclinical imaging validation.

Service scope may include:

- Nanoprobe development
- Multimodal imaging probe design
- Fluorescence imaging probes
- Near-infrared imaging
- NIR-II fluorescence imaging
- Photoacoustic imaging
- MRI probe evaluation
- PET-CT imaging support
- SPECT imaging support
- Tumor imaging
- Biodistribution studies
- Drug delivery tracking
- Image-guided therapeutic response evaluation

- Small animal imaging validation
- Multimodal diagnosis-and-treatment research

The platform profile describes multimodal molecular imaging as a key direction, including the development of functional nanomaterials for tracking cellular and molecular processes and exploring applications in tumor early diagnosis and molecular imaging.

3.5 Biological Effects and Biosafety of Nanomaterials

The platform supports biological effect evaluation and biosafety assessment of nanomaterials.

Service scope may include:

- Cell-level biosafety evaluation
- Molecular-level biological effect assessment
- In vivo biosafety evaluation
- Nanomaterial toxicity assessment
- Cytotoxicity testing
- Hemolysis testing
- Oxidative stress evaluation
- Inflammatory response evaluation
- Organ toxicity evaluation
- Histopathological safety assessment
- Biodistribution and clearance evaluation
- Immune compatibility assessment
- Long-term safety-related research support

The uploaded profile specifically identifies the biological effects and biosafety of nanomaterials as an important research area, emphasizing molecular, cellular, and in vivo evaluation.

4. Delivery System Development Services

4.1 LNP / RNA Delivery Platform

The platform supports lipid nanoparticle and RNA delivery research, including formulation development, encapsulation, optimization, and validation.

Service scope may include:

- mRNA delivery system development
- circRNA delivery support
- Linear mRNA preparation support
- Circular RNA preparation support
- siRNA delivery strategy
- miRNA delivery strategy
- ASO delivery support
- LNP formulation optimization
- Ionizable lipid-related design support
- Cationic lipid synthesis support
- Lipid composition optimization
- LNP assembly
- LNP surface modification
- Encapsulation efficiency evaluation
- Particle size and zeta potential analysis
- Stability testing
- Cell uptake validation
- In vivo delivery validation
- RNA therapy proof-of-concept support

The technical profile lists LNP services including mRNA design, optimization, preparation, cationic lipid synthesis, lipid formulation optimization, LNP assembly, surface modification, and LNP formulation services for mRNA and circular RNA packaging and delivery.

4.2 Exosome Engineering & Characterization

The platform supports exosome-related research from extraction and characterization to engineering and functional validation.

Service scope may include:

- Exosome extraction

- Exosome purification
- Exosome characterization
- TEM-based characterization
- NTA analysis
- DLS analysis
- Western blot characterization
- Nano-flow cytometry
- Exosome surface modification
- Exosome cargo loading
- Exosome-based delivery system development
- Exosome biodistribution studies
- Exosome functional validation
- Exosome biomarker research
- Exosome-related SCI project support

The uploaded technical service list includes exosome extraction and characterization using TEM, NTA, DLS, Western blot, and nano-flow cytometry, as well as exosome and surface modification services.

4.3 Hydrogel Design & Smart Biomaterials

The platform supports responsive hydrogel design and smart biomaterial development.

Service scope may include:

- Temperature-responsive hydrogels
- pH-responsive hydrogels
- Redox-responsive hydrogels
- Enzyme-responsive hydrogels
- Electrically responsive hydrogels
- Multi-responsive hydrogel systems
- Injectable hydrogel systems

- Local drug delivery hydrogels
- Tissue repair hydrogel platforms
- Immunomodulatory hydrogel systems
- Hydrogel-based wound healing models
- Hydrogel-based soft tissue injury repair
- Hydrogel characterization and validation
- Hydrogel-related animal efficacy studies

The uploaded service list states that the team is experienced in designing temperature-responsive, pH-responsive, redox-responsive, enzyme-responsive, electrically responsive, and multi-responsive hydrogels.

4.4 Microneedle and Local Delivery Platforms

The platform supports microneedle and local delivery-related research.

Service scope may include:

- Microneedle design
- Microneedle-based drug delivery
- Local transdermal delivery systems
- Controlled local release systems
- Wound healing applications
- Skin disease research
- Soft tissue repair research
- Local inflammation treatment research
- Local tumor therapy research
- Biomaterial safety evaluation

Microneedles are included in the uploaded nanomaterial and custom synthesis service scope.

5. Bioconjugation and Custom Synthesis Services

5.1 Bioconjugation and Labeling

The platform supports customized labeling and conjugation services.

Service scope may include:

- Fluorescent labeling
- Ligand labeling
- Covalent conjugation
- Physical adsorption-based labeling
- Qualitative analysis of labeled molecules
- Localization analysis
- Quantitative analysis
- Peptide conjugation
- Protein conjugation
- Polymer conjugation
- Antibody-related conjugation support
- Probe-conjugate development
- Targeted molecule design

The uploaded service list describes labeling services involving covalent binding or physical adsorption of functional molecules to target molecules for qualitative, localization, and quantitative analysis.

5.2 Drug Conjugate Design and Development

The platform supports research-stage drug conjugate design, synthesis, purification, analysis, optimization, testing, and evaluation.

Supported conjugate research directions may include:

- Polymer-drug conjugates
- Peptide-drug conjugates
- Aptamer-drug conjugates
- Small molecule-drug conjugates
- Immune-stimulating conjugates
- Radiopharmaceutical-related conjugates

- Vesicle-drug conjugates
- Targeted drug conjugates
- Customized XDC research platforms

Potential conjugate categories may include:

- PAC
- AOC
- PDC
- ApDC
- FDC
- RDC
- ISAC
- VDC
- SMDC

The uploaded profile lists multiple drug conjugate categories and describes one-stop services for XDC-related product design, synthesis, analysis, purification, optimization, testing, and evaluation.

5.3 Customized Synthesis

The platform supports custom synthesis services for research and early translational development.

Service scope may include:

- Small molecule synthesis
- Polymer synthesis
- Nucleic acid synthesis
- DNA-related customization
- RNA-related customization
- PNA-related customization
- Peptide synthesis
- Protein expression

- Biological membrane extraction
- Exosome-related preparation
- Exosome surface modification
- Functional molecular labeling
- Research compound customization

The uploaded technical service list specifically includes customization involving small molecules, polymers, nucleic acids, peptides, protein expression, biological membrane extraction, exosomes, and exosome surface modification.

5.4 Stable Isotope-Labeled Compound Synthesis

The platform supports stable isotope-labeled compound customization for research use.

Potential services include synthesis of compounds labeled with:

- Deuterium
- Carbon-13
- Nitrogen-15
- Carbon-14
- Sulfur-35
- Other isotope-labeled atoms depending on project requirements

Applications may include:

- Metabolic tracing
- Pharmacokinetic research
- Mechanism studies
- Mass spectrometry standards
- Drug metabolism studies
- Analytical method development

The uploaded service list includes stable isotope compound synthesis customized according to client needs.

6. Nanomaterials and Advanced Material Platforms

The platform supports design, synthesis, modification, characterization, and biological evaluation of multiple nanomaterial systems.

Supported material categories may include:

- Quantum dots
- Silicon-based nanomaterials
- Black phosphorus quantum dots
- Black phosphorus nanosheets
- Micelles
- Liposomes
- Lipid nanoparticles
- Gold nanoparticles
- Platinum nanoparticles
- Palladium nanoparticles
- Microspheres
- Hydrogels
- Microneedles
- Iron oxide nanomaterials
- Manganese oxide nanomaterials
- Calcium peroxide nanomaterials
- Zinc oxide nanomaterials
- Nanozymes
- Rare-earth nanomaterials
- Two-dimensional materials
- DNA origami structures
- DNA tetrahedrons
- Nuclear medicine probes
- Multimodal imaging nanoprobe

These nanomaterial categories are listed in the uploaded technical service profile as part of the platform's customizable nanomaterial and probe development capabilities.

7. Experimental Research Services

7.1 Cellular and Molecular Biology Services

The platform supports cellular and molecular biology experiments for mechanism validation, functional studies, and preclinical research.

Service scope may include:

- Cell proliferation assays
- Cell viability assays
- Cell apoptosis assays
- Cell migration assays
- Cell invasion assays
- Cell signaling pathway validation
- Western blot
- ELISA
- Flow cytometry
- Flow cytometric sorting
- Confocal microscopy
- Super-resolution microscopy
- Two-photon microscopy
- Live-cell imaging
- High-content imaging
- CRISPR/Cas9 gene knockout
- Antibacterial assays
- Electrophysiology-related support
- Cell energy metabolism analysis

- Seahorse energy metabolism analysis

The uploaded service list includes cell proliferation, apoptosis, antibacterial experiments, confocal experiments, flow cytometry, ELISA, Western blot, CRISPR/Cas9 gene knockout, and Seahorse energy metabolism analysis.

7.2 Molecular Interaction Analysis

The platform supports molecular interaction and binding affinity analysis.

Service scope may include:

- SPR
- ITC
- BLI
- MST
- Protein-ligand interaction studies
- Protein-protein interaction studies
- Protein-nucleic acid interaction studies
- Binding affinity evaluation
- Binding kinetics analysis
- Drug-target interaction validation
- Mechanism-oriented interaction studies

The uploaded service list includes molecular interaction technologies such as SPR, ITC, BLI, and MST.

7.3 Drug Screening and Mechanism Validation

The platform supports drug screening and pathway validation studies.

Service scope may include:

- Drug screening
- High-throughput drug screening
- Compound activity evaluation
- Cytotoxicity screening
- Functional screening

- Pathway validation
- Mechanism validation
- Drug combination evaluation
- In vitro pharmacodynamic studies
- Early-stage therapeutic candidate evaluation

The company profile describes high-throughput drug screening as one of the platform capabilities, and the technical service list includes drug screening and cell signaling pathway validation.

7.4 Imaging Services

The platform supports cellular imaging, tissue imaging, ultrastructural imaging, and in vivo imaging.

Service scope may include:

- Confocal microscopy
- Super-resolution microscopy
- Two-photon microscopy
- Live-cell workstation imaging
- High-content imaging
- Ultrastructural pathology imaging
- Transmission electron microscopy
- Immunoelectron microscopy
- Cryo-electron microscopy
- Biological electron microscopy
- Biological ultrathin section electron microscopy
- Small animal fluorescence imaging
- NIR-II fluorescence imaging
- Micro-CT
- PET-CT
- SPECT

- MRI
- Ultrasound imaging
- Photoacoustic imaging
- Multimodal imaging
- Biodistribution imaging
- Therapeutic response imaging

The uploaded profile lists representative imaging instruments including confocal microscopy, super-resolution microscopy, live-cell workstation, high-content imaging, small animal micro-CT, PET-CT, photoacoustic imaging, MRI, ultrasound, in vivo imaging, transmission electron microscopy, and 3D field-emission scanning electron microscopy.

7.5 Animal Studies and Preclinical Validation

The platform supports preclinical animal experiments and pharmacodynamic validation.

Service scope may include:

- Small animal in vivo experiments
- Large animal in vivo experiments, depending on project needs
- Overall pharmacodynamic studies
- Tumor model studies
- Inflammation model studies
- Immune-related disease models
- Delivery system efficacy validation
- In vivo imaging validation
- Biodistribution studies
- Drug safety evaluation
- Medical device evaluation
- Organ toxicity evaluation
- Histopathological analysis
- Integrated preclinical data reporting

The uploaded service list includes small animal and large animal in vivo experiments, overall

pharmacodynamic studies, medical device evaluation, and drug safety evaluation.

7.6 Analytical Chemistry, Mass Spectrometry and Characterization

The platform supports analytical testing and physicochemical characterization for biomedical research and material development.

Service scope may include:

- MALDI-TOF-MS
- ESI-MS
- LC-MS-related analysis
- Mass spectrometry support
- NTA
- DLS
- Zeta potential analysis
- GPC
- Small-angle X-ray scattering
- Electrochemical analytical method development
- Microplastic detection
- LDIR
- PY-GCMS
- Nanomaterial characterization
- Particle size analysis
- Molecular weight distribution analysis
- Stability testing
- Research material characterization

The uploaded service list includes MALDI-TOF-MS, ESI-MS, NTA, DLS/ZETA, GPC, small-angle X-ray scattering, electrochemical analytical method development, and microplastic detection using LDIR and PY-GCMS.

7.7 Proteomics, Metabolomics and High-Performance Computing

The platform includes proteomics, metabolomics, and computational support capabilities.

Service scope may include:

- Proteomics support
- Metabolomics support
- Protein-related analysis
- Metabolite profiling
- Multi-omics experimental support
- High-performance computing support
- Drug screening data support
- Imaging data support
- Translational research data integration

The company profile states that the platform has established sub-platforms including proteomics, metabolomics, high-throughput drug screening, and high-performance computing.

7.8 Protein Structure Analysis

The platform supports protein structure analysis through multiple structural biology technologies.

Service scope may include:

- Cryo-electron microscopy single-particle analysis
- Protein nuclear magnetic resonance analysis
- X-ray crystallography-based protein crystal structure analysis
- Structural characterization
- Protein complex analysis
- Structural biology support for drug discovery
- Target-ligand structural studies

The uploaded service list includes cryo-EM single-particle analysis, protein NMR analysis, and X-ray diffraction protein crystal structure analysis.

8. Customized RUO Research Kit and Detection Panel Development

8.1 Overview

NBIIIC-HI and its China-based technical partners support customized research-use-only detection kits and research panels for academic laboratories, hospital research units, biotech startups, and translational research teams.

These products and services are intended for research use only and are not intended for clinical diagnostic use.

The platform may help transform detection method development capabilities into standardized RUO research products, including reagent combinations, SOPs, QC documents, data analysis templates, and figure-ready reporting formats.

8.2 Potential Customized RUO Product Areas

Potential RUO research kit and detection panel development areas may include:

Exosome Research Kits

- Exosome isolation research kit
- Exosome characterization research kit
- Exosome biomarker detection panel
- Exosome surface marker panel
- Exosome engineering validation kit
- Exosome delivery evaluation panel

Immune and Inflammation Research Panels

- Macrophage polarization research panel
- M1/M2 marker detection panel
- Inflammation cytokine research panel
- Immune activation research panel
- Immune suppression research panel
- Tumor immune microenvironment research panel

Cell Death and Stress Response Panels

- Oxidative stress research panel
- Ferroptosis-related research panel

- Apoptosis-related research panel
- Pyroptosis-related research panel
- Autophagy-related research panel
- Mitochondrial dysfunction research panel

Nanomaterial Safety Kits

- Nanomaterial cytotoxicity evaluation kit
- Nanomaterial hemolysis evaluation kit
- Nanomaterial oxidative stress evaluation kit
- Nanomaterial inflammation response panel
- Nanomaterial biosafety evaluation package

LNP / RNA Delivery Evaluation Kits

- LNP encapsulation efficiency evaluation kit
- RNA delivery efficiency evaluation panel
- Cell uptake evaluation kit
- Endosomal escape evaluation panel
- RNA expression validation panel
- LNP stability evaluation support package

Biomarker Detection Panels

- Customized oncology biomarker research panel
- Inflammation biomarker panel
- Cardiovascular biomarker research panel
- Fibrosis biomarker panel
- Metabolic disease biomarker panel
- Neurological disease biomarker panel

Probe-Based Detection Kits

- Fluorescent probe-based detection kit
- Nanoprobe-based detection kit

- Electrochemical detection method kit
- Biochip-based research detection kit
- Molecular imaging probe validation panel

8.3 Customized RUO Kit Deliverables

A customized RUO kit or detection panel may include:

- Product design plan
- Reagent combination
- Detection method selection
- Standard operating procedure
- Sample preparation protocol
- Positive control recommendation
- Negative control recommendation
- Quality control document
- Storage and transportation conditions
- Data analysis template
- Figure-ready reporting format
- Technical report template
- Research-use-only statement
- User instructions
- Optional validation service
- Optional SCI figure preparation support

8.4 RUO Compliance Statement

All customized kits, panels, and detection products described in this catalogue are intended for research use only.

Required statement:

For Research Use Only. Not for use in clinical diagnostic procedures.

They are not intended to diagnose, treat, cure, mitigate, or prevent disease in human subjects.

They should not be used for patient diagnosis, clinical decision-making, disease screening, or therapeutic monitoring unless appropriate regulatory approval, institutional approval, clinical validation, and legal compliance have been obtained.

9. International Collaboration Models

9.1 No-Sample-Transfer Collaboration Model

For international collaborations, NBIIIC-HI recommends a no-sample-transfer model whenever feasible.

In this model, the overseas partner may provide:

- Research questions
- Molecular information
- Target information
- Compound structures
- RNA or protein sequence information
- Experimental concepts
- Preliminary data
- Protocol requirements
- Desired detection markers
- Project objectives

The China-based technical partner may support:

- Experimental design
- Delivery system development
- Material preparation
- Probe development
- RUO kit development
- Local validation using locally prepared materials
- Data report generation
- Technical documentation

This model minimizes sample transfer complexity and is suitable for early-stage international research collaborations.

9.2 Customized RUO Kit Model

For international research clients, customized RUO kits and detection panels may be developed according to specific research needs.

The deliverables may include:

- Customized reagent kit
- SOP
- QC document
- Technical instructions
- Data analysis template
- Figure-ready reporting format
- RUO statement
- Optional remote technical support

The overseas partner may conduct experiments in their own local laboratory.

This model is suitable for:

- Academic laboratories
- Hospital research units
- Biotech startups
- RNA therapy teams
- Exosome research teams
- Nanomedicine research groups
- Biomarker discovery teams
- Translational research laboratories

9.3 Non-Clinical Research Sample Testing Model

If physical sample transfer is required, only non-clinical, non-infectious research materials may be considered after prior review.

Potentially acceptable materials may include:

- Non-infectious research compounds
- Synthetic peptides
- Purified proteins
- Plasmids
- Synthetic RNA
- Non-infectious nanomaterials
- Non-clinical research reagents
- Non-regulated chemical or biological research materials

Before accepting any sample, the following documents and procedures may be required:

- Material Transfer Agreement
- Sample classification
- Biosafety review
- MSDS or non-hazardous material statement
- Customs documentation
- Research-use statement
- Logistics and temperature-control plan
- Sample ownership agreement
- Sample disposal agreement
- Intellectual property and data ownership terms

9.4 Restricted Sample Policy

The following materials are not accepted without prior institutional, ethical, biosafety, customs, and legal clearance:

- Clinical samples
- Human tissues
- Human blood
- Human serum or plasma
- Patient-derived materials

- Infectious materials
- Pathogen-related materials
- Genetically regulated materials
- Restricted biological materials
- Animal tissues requiring special permits
- Materials with unclear origin or unclear biosafety classification

This policy is intended to protect the overseas partner, NBIIIC-HI, the China-based technical partner, and all participating institutions.

10. Featured Service Packages

10.1 Nanomedicine SCI Upgrade Package

This package is designed for research teams with an existing biological or clinical research direction who wish to upgrade their project through nanomedicine, delivery system design, imaging validation, animal efficacy studies, and translational mechanism development.

Suitable for:

- Oncology
- Inflammation
- Autoimmune disease
- Cardiovascular disease
- Tissue repair
- Metabolic disease
- Immune regulation
- Fibrosis
- Neurological disease

Potential components:

- Project design
- Nanodelivery strategy
- Material preparation

- Material characterization
- Cellular uptake validation
- Mechanism validation
- Animal efficacy study
- Imaging validation
- Biosafety evaluation
- SCI figure and manuscript support

10.2 LNP / RNA Delivery Validation Package

This package supports early-stage RNA delivery research, including formulation design, encapsulation evaluation, cellular uptake, delivery efficiency, and functional validation.

Suitable for:

- mRNA
- circRNA
- siRNA
- miRNA
- ASO
- RNA-based immune regulation
- Gene silencing studies
- RNA therapy proof-of-concept studies

Potential components:

- LNP formulation design
- RNA encapsulation
- Particle size and zeta potential testing
- Stability evaluation
- Cellular uptake assay
- Expression validation
- Functional assay

- In vivo validation
- Technical report

10.3 Exosome Engineering Package

This package supports exosome isolation, characterization, engineering, surface modification, delivery validation, and functional studies.

Suitable for:

- Tumor microenvironment research
- Stem cell research
- Inflammation
- Cardiovascular disease
- Neurological disease
- Tissue repair
- Immune modulation

Potential components:

- Exosome isolation
- TEM / NTA / DLS / WB / nano-flow characterization
- Surface modification
- Cargo loading
- Uptake validation
- Functional assays
- Animal validation
- Data report

10.4 Hydrogel and Microneedle Local Delivery Package

This package supports smart biomaterial design and local delivery system development.

Suitable for:

- Wound healing
- Soft tissue injury

- Osteoarthritis
- Skin disease
- Local inflammation
- Pain-related research
- Local tumor therapy
- Tissue repair

Potential components:

- Hydrogel design
- Microneedle design
- Drug loading
- Release kinetics
- Material characterization
- Cell compatibility
- Animal efficacy model
- Tissue repair evaluation
- Safety evaluation

10.5 Molecular Imaging Probe Development Package

This package supports the development and validation of molecular probes for imaging, biodistribution, and therapeutic monitoring.

Suitable for:

- Tumor imaging
- Drug delivery tracking
- Biodistribution studies
- Fluorescence imaging
- Photoacoustic imaging
- MRI-related studies
- PET-CT / SPECT-related studies

- Image-guided delivery studies

Potential components:

- Probe design
- Probe synthesis
- Probe characterization
- Cell imaging
- Animal imaging
- Biodistribution study
- Imaging-based therapeutic monitoring
- Technical report

10.6 Customized RUO Research Kit Package

This package supports customized research-use-only detection kits and research panels.

Suitable for:

- Exosome biomarker detection
- Immune profiling
- Inflammation panels
- Oxidative stress panels
- Ferroptosis-related research
- Nanomaterial biosafety evaluation
- LNP / RNA delivery evaluation
- Customized biomarker research

Potential components:

- Marker selection
- Detection method design
- Reagent combination
- SOP
- QC document

- Data template
- Technical instructions
- Optional validation experiment
- Optional SCI figure support

11. NBIIC-HI Role

NBIIC-HI serves as the international project organizer, translational research coordinator, and scientific communication partner.

NBIIC-HI may support:

- International collaboration development
- Scientific project design
- Clinical problem identification
- Translational strategy planning
- Research proposal development
- English scientific writing
- Manuscript preparation and editing
- Grant and funding strategy support
- North American partner communication
- Expert network coordination
- Investor-facing project packaging
- Early-stage commercialization strategy
- International service coordination
- Website and brochure-based service promotion

12. China-Based Technical Partner Role

The China-based technical partner supports experimental implementation and platform-based validation.

The technical partner may support:

- Nanomedicine platform development
- Bioconjugation and custom synthesis
- Delivery system preparation
- LNP / RNA delivery validation
- Exosome engineering and characterization
- Molecular imaging probe development
- Smart biomaterial design
- In vitro experimental validation
- In vivo experimental validation
- Preclinical imaging
- Drug efficacy evaluation
- Biosafety evaluation
- Customized RUO research kit development
- Technical reports and experimental data delivery
- Material characterization
- Preclinical translational validation

13. Who We Work With

The platform supports a wide range of academic, clinical, and early-stage translational research partners.

Potential collaborators include:

- Physician-scientists
- Hospital research teams
- University laboratories
- Principal investigators
- Graduate student and postdoctoral research teams

- Biotech startups
- Nanomedicine research groups
- RNA therapy research teams
- Exosome research groups
- Biomaterials laboratories
- Drug delivery laboratories
- Molecular imaging groups
- International teams seeking China-based experimental validation
- Research teams seeking SCI project upgrading
- Teams seeking customized RUO research kit development

14. Important Use and Compliance Notes

All services described in this catalogue are intended for research, preclinical, academic, or early-stage translational research purposes.

Unless otherwise clearly stated and approved through appropriate regulatory, institutional, ethical, and legal pathways:

- Services are not intended for clinical diagnosis.
- RUO kits are not intended for diagnostic use.
- Research data should not be used for patient treatment decisions.
- Clinical samples are not accepted without prior compliance review.
- International sample transfer requires MTA, biosafety review, customs documentation, and logistics confirmation.
- Intellectual property, data ownership, sample ownership, and publication rights should be clarified before project initiation.

15. Short Closing Statement

Through this technical collaboration platform, NBIIIC-HI aims to connect international scientific ideas with advanced China-based experimental execution capabilities. By integrating

nanomedicine, bioconjugation, delivery systems, molecular imaging, preclinical validation, customized RUO research kit development, and scientific project strategy, the platform helps research teams generate high-quality data, strengthen translational potential, and accelerate biomedical innovation.

For Research Use Only. Not for Clinical Diagnostic Use.

Contact Us

For technical consultation, customized RUO research kit development, international collaboration, preclinical validation, or translational research project design, please contact:

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Email: admin@nbiic.ca

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All project inquiries will be reviewed by NBIIIC-HI and coordinated with appropriate technical partners based on project scope, sample type, regulatory considerations, and research objectives.