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<td>42</td>
</tr>
</tbody>
</table>
Nanovex Biotechnologies is an innovative technology based spin-off founded in 2014 that provides a wide range of products and services in the nanobiotechnology field.

Our specialized team has great experience in the design, development, modification, functionalization and characterization of nanovesicles and metallic nanoparticles for multiple applications.
PRODUCTS
PRONANOSOMES
Nanovesicles are closed bilayer structures able to entrap a wide range of compounds providing several advantages such as: encapsulated compound protection, increased bioavailability, controlled delivery, target delivery, great stability and masking undesired tastes, among others.

Pronanosomes are ready-to-use formulations to obtain nanovesicles which are able to encapsulate different compounds (Hydrophilic and lipophilic molecules, peptides, proteins,...) in a fast and simple way:

1. Load
2. Shake
3. Nanovesicles are ready to use

Size and distribution can be reduced by using vortex or homogenizer. Small Unilamellar Vesicles (SUV) with smaller sizes and narrower distributions are obtained after sonication of the product.

Applications

- Infectious diseases
- Cancer therapy
- Gene therapy
- Vaccination
- Parasitic diseases
- Macrophage activation
- Others

• Functional foods
• Superfoods
• Dairy products
• Others

• Biotechnology
• Diagnostics
• Cosmetics
• Bioengineering
• New pharma products
• Transfection
**ADVANTAGES**

- Encapsulated compound protection
- Increased bioavailability
- Controlled delivery
- Great stability
- Masking undesired tastes
- Targeted delivery
- Size control
- Easy and fast
STANDARD PRONANOSOMES

**PRONANOSOME NIO-N**
- Niosomes
- Stability
- Versatile

**PRONANOSOME LIPO-N**
- Liposomes
- Natural products

Our standard Pronanosomes are formulated to obtain niosomes or liposomes able to encapsulate different compounds and to be used in multiple applications.

INTRACELLULAR DELIVERY PRONANOSOMES

**PRONANOSOME NIO-CAT**
- Cationic niosomes
- Positive Z-potential
- Intracellular release

**PRONANOSOME LIPO-CAT**
- Cationic liposomes
- Positive Z-potential
- Intracellular release

Our intracellular delivery Pronanosomes are formulated to obtain niosomes or liposomes able to deliver the encapsulated drug intracellularly.

CONTROLLED DELIVERY PRONANOSOMES

**PRONANOSOME THERMO**
- Thermosensitive
- Controlled released with T

**PRONANOSOME pH**
- Sensitive to pH
- Controlled release with pH

Our controlled delivery Pronanosomes are formulated to obtain nanovesicles able to control the delivery of the encapsulated drug with the temperature or pH.

SPECIFIC APPLICATIONS PRONANOSOMES

**PRONANOSOME-BBB**
- Blood Brain Barrier
- transcytosis
- Improve brain delivery

**PRONANOSOME-DERMAL**
- Dermal delivery
- (trans)dermal delivery

Our Pronanosomes BBB and dermal are formulated to obtain nanovesicles able to vehiculate compounds through the BBB or through the skin, respectively.
All our Pronanosomes can be ordered with other extra characteristics shown above (From 1 to 4 simultaneously) to suit the needs of our customers.
PRONANOSOME – HOW TO USE?

**THE COMPOUND TO ENCAPSULATE IS...**

**WATER SOLUBLE COMPOUND**
- Add to Pronanosome the compound solved in buffer/water

**WATER INSOLUBLE COMPOUND**
- Add to Pronanosome the compound solved in an organic solvent. Remove solvent and then add water/buffer.
- Add to Pronanosome the compound directly and then add water/buffer.
- Add to Pronanosome the compound solved in ethanol and then add water/buffer. Max. ethanol conc. 20% (v/v)

**THERMOSENSITIVE COMPOUND?**

**NO**
- Hydrate Pronanosome product at 60°C for 20 min using the aqueous solution containing the compound

**MLV**
- Shake vigorously for 2 minutes at 60°C

**SUV**
- Shake vigorously for 2 minutes and sonicate (both processes at 60°C)

**YES**
- Hydrate Pronanosome product at 4°C overnight using the aqueous solution containing the compound

**MLV**
- Shake vigorously for 2 minutes at the highest possible temperature

**SUV**
- Shake vigorously for 2 minutes and sonicate at the highest possible temperature

**TYPE OF NANOVESICLE**

- **MLV**
- **SUV**

**Characteristics**
- **MLV**
  - High encapsulation efficiency
  - Heterogeneous size
  - Easy to obtain
  - Cleared rapidly by the reticulo-endothelial system (RES)

- **SUV**
  - High Lipid/Water ratio
  - Relatively easy access to the cells of tissue
  - Homogeneous size
  - Low encapsulation efficiency in aqueous phase
SYNTHETIC EXOSOMES
**SYNTHETIC EXOSOMES**

**Synthetic exosomes** are a very interesting tool to use as a standard in different applications such as the validation of exosome isolation tools or detection systems, among others.

**SINEX-CD9**

CD9 Synthetic exosomes based on liposomes with a composition similar to that of natural exosomes. Fully characterized. Available with green or red fluorescence.

**SINEX-CD63**

CD63 Synthetic exosomes based on liposomes with a composition similar to that of natural exosomes. Fully characterized. Available with green or red fluorescence.

**SINEX-CD81**

CD81 Synthetic exosomes based on liposomes with a composition similar to that of natural exosomes. Fully characterized. Available with green or red fluorescence.
METALLIC NANOPARTICLES
Nanovex Biotechnologies offers **SPHERICAL gold nanoparticles** which are citrate capped.

Our gold nanoparticles are available in different sizes ranging from 15 to 100 nm.

UV-Vis spectra showing optical properties of gold nanoparticles of different sizes.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>PEAK (nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 nm</td>
<td>521</td>
</tr>
<tr>
<td>30 nm</td>
<td>524</td>
</tr>
<tr>
<td>40 nm</td>
<td>526</td>
</tr>
<tr>
<td>50 nm</td>
<td>533</td>
</tr>
<tr>
<td>60 nm</td>
<td>542</td>
</tr>
<tr>
<td>80 nm</td>
<td>553</td>
</tr>
<tr>
<td>90 nm</td>
<td>564</td>
</tr>
<tr>
<td>100 nm</td>
<td>583</td>
</tr>
</tbody>
</table>

DLS spectra showing gold nanoparticles of 20 nm from Nanovex Biotechnologies.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>PDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 nm</td>
<td>0.106</td>
</tr>
<tr>
<td>30 nm</td>
<td>0.189</td>
</tr>
<tr>
<td>40 nm</td>
<td>0.176</td>
</tr>
<tr>
<td>50 nm</td>
<td>0.156</td>
</tr>
<tr>
<td>60 nm</td>
<td>0.179</td>
</tr>
<tr>
<td>80 nm</td>
<td>0.188</td>
</tr>
<tr>
<td>90 nm</td>
<td>0.178</td>
</tr>
<tr>
<td>100 nm</td>
<td>0.148</td>
</tr>
</tbody>
</table>
Nanovex Gold nanoparticles have an excellent QUALITY:

- Narrow size distribution (typical CV values ≤ 15%).
- Batch-to-batch consistency (typical CV values ≤ 10%).
- Full characterization data with all products.
- Product Quality Guarantee.
- Support and service from our nanomaterials experts.

VERSATILITY: Gold nanoparticles can be used in a wide range of applications

<table>
<thead>
<tr>
<th>Application</th>
<th>Size (nm)</th>
<th>Surface Functionalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein conjugation</td>
<td>15-100</td>
<td>Citrate, streptavidine, COOH</td>
</tr>
<tr>
<td>Modification with thiolated ligands</td>
<td>15-100</td>
<td>Citrate</td>
</tr>
<tr>
<td>Western blot/ dot blot</td>
<td>15</td>
<td>Streptavidine</td>
</tr>
<tr>
<td>Immunohistochemistry</td>
<td>15-40</td>
<td>Streptavidine</td>
</tr>
<tr>
<td>Flow cytometry</td>
<td>50-100</td>
<td>Citrate</td>
</tr>
<tr>
<td>Cellular uptake</td>
<td>30-60</td>
<td>Citrate</td>
</tr>
<tr>
<td>Lateral flow immunoassays</td>
<td>30-80</td>
<td>Citrate, streptavidine, COOH</td>
</tr>
<tr>
<td>ELISA</td>
<td>15-30</td>
<td>Streptavidine</td>
</tr>
<tr>
<td>Microscopy</td>
<td>50-100</td>
<td>Streptavidine</td>
</tr>
</tbody>
</table>
Nanovex Biotechnologies offers **SPHERICAL silver nanoparticles** which are tannic acid capped.

Our silver nanoparticles are available in different sizes: 20, 30 and 50 nm.

UV-Vis spectra showing optical properties of silver nanoparticles of different sizes.

DLS spectra showing different sizes of silver nanoparticles.
Nanovex Silver nanoparticles have an excellent QUALITY:

- Narrow size distribution.
- Batch-to-batch consistency.
- Full characterization data with all products.
- Product Quality Guarantee.
- Support and service from our nanomaterials experts.

As silver nanoparticles properties are size and shape dependant, Nanovex Biotechnologies guarantee the quality of the supplied nanoparticles providing its customers detailed information of each batch.

VERSATILITY: Silver nanoparticles can be used in a wide range of applications

<table>
<thead>
<tr>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein conjugation</td>
</tr>
<tr>
<td>Modification with thiolated ligands</td>
</tr>
<tr>
<td>Western blot/ dot blot</td>
</tr>
<tr>
<td>Molecular Imaging</td>
</tr>
<tr>
<td>Nanotoxicology</td>
</tr>
<tr>
<td>Antibacterial</td>
</tr>
<tr>
<td>Lateral flow immunoassays</td>
</tr>
<tr>
<td>ELISA</td>
</tr>
<tr>
<td>SERS</td>
</tr>
</tbody>
</table>
Nanovex Biotechnologies gold/silver alloy nanoparticles are synthesized through citrate reduction method in absence of additional stabilizing agents.

The optoelectronic properties of these alloyed nanoparticles are tunable varying the nanoparticle composition instead of varying nanoparticle size.

The optoelectronic properties of these alloyed nanoparticles differ from pure gold or silver nanoparticles of the same size.
Alloyed nanoparticles analyzed by Nanoparticle Tracking Analysis.

Nanovex Biotechnologies gold/silver nanoparticles are monodispersed nanoparticles with silver-like optical properties.

These nanoparticles maintain their optical properties in the 400-500 nm range while avoiding the use of silver nanoparticles of low (< 20 nm) or high size (60-100 nm) to have similar properties.

Our gold/silver nanoparticles are also an alternative in the development of nanomaterial bioconjugates, electrocatalytic applications or biosensing with multiplexed detection.

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>SIZE</th>
<th>PEAK (nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Au0:Ag100</td>
<td>40 nm</td>
<td>411</td>
</tr>
<tr>
<td>Au20:Ag80</td>
<td>40 nm</td>
<td>431</td>
</tr>
<tr>
<td>Au50:Ag50</td>
<td>40 nm</td>
<td>456</td>
</tr>
<tr>
<td>Au80:Ag20</td>
<td>40 nm</td>
<td>498</td>
</tr>
<tr>
<td>Au100:Ag0</td>
<td>40 nm</td>
<td>526</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Application</th>
<th>Surface Functionalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein conjugation</td>
<td>Citrate, streptavidine, COOH</td>
</tr>
<tr>
<td>Modification with thiolated ligands</td>
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<tr>
<td>Western blot/ dot blot</td>
<td>Streptavidine</td>
</tr>
<tr>
<td>Immunohistochemistry</td>
<td>Streptavidine</td>
</tr>
<tr>
<td>Flow cytometry</td>
<td>Citrate</td>
</tr>
<tr>
<td>Cellular uptake</td>
<td>Citrate</td>
</tr>
<tr>
<td>Lateral flow immunoassays</td>
<td>Citrate, streptavidine, COOH</td>
</tr>
<tr>
<td>ELISA</td>
<td>Streptavidine</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Streptavidine</td>
</tr>
</tbody>
</table>
Nanovex Biotechnologies offers lipoic acid functionalized SPHERICAL gold, silver and gold-silver alloy nanoparticles.

**FUNCTIONALIZED METALLIC NANOPARTICLES**

Nanovex lipoic acid functionalized nanoparticles are ideal for conjugation of proteins and other primary amines using EDC/NHS coupling chemistry.

- Available in different sizes and materials.
- Narrow size distribution and batch-to-batch consistency.
- Carboxyl group high density.
- Full characterization data with all products.
- Product Quality Guarantee.
- Support and service from our nanomaterials experts.

Lipoic acid nanoparticles can be used in many applications such as protein conjugation, western blot/dot blot, microscopy applications, lateral flow assays, ELISA or dark field microscopy.
Carbon dots is a new class of fluorescent carbon nanomaterials.

Carbon dots possess the attractive properties of high stability, good conductivity, low toxicity, environmental friendliness as well as comparable optical properties to quantum dots.

Applications
• Bioimaging
• Sensing
• Drug delivery
• Catalysis
• Optoelectronics

![Size Distribution by Intensity](image1.png)

![Intensity vs Wavelength](image2.png)
Nanovex Biotechnologies offers 20 nm superparamagnetic iron oxide nanoparticles (SPIONS) which are oleic acid capped and dispersed in toluene.

Magnetization > 20 emu/g

**Application**

- Magnetic storage
- Drug delivery
- Biosensing
- Magnetic separation
- Contrast reagent for imaging
- Lateral flow magneto-immunoassays
Gold nanostars are novel star-shaped gold nanoparticles with interesting properties for different applications such as plasmonics, spectroscopy, biomedicine, biosensor, medical diagnostics, cancer therapies and energy conversion.

**Gold nanostars**

- **Technical specifications**
  
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical name</td>
<td>AuNStars@PVP</td>
</tr>
<tr>
<td>Size (nm)</td>
<td>40</td>
</tr>
<tr>
<td>Stabilizer</td>
<td>PVP</td>
</tr>
<tr>
<td>Dispersion medium</td>
<td>Water, alcohols, THF, DMF</td>
</tr>
<tr>
<td>Nucleus material</td>
<td>Au</td>
</tr>
<tr>
<td>Nucleus size (nm)</td>
<td>40</td>
</tr>
<tr>
<td>Coating material</td>
<td>-</td>
</tr>
<tr>
<td>Coating thickness (nm)</td>
<td>-</td>
</tr>
<tr>
<td>Absorbance maximum wavelength (nm)</td>
<td>800</td>
</tr>
<tr>
<td>Equivalence 1OD (mg/ml)</td>
<td>0.037</td>
</tr>
<tr>
<td>Minimum Stability period (months)</td>
<td>12</td>
</tr>
<tr>
<td>Storage temperature (°C)</td>
<td>20 – 25 (4 – 6 for THF)</td>
</tr>
</tbody>
</table>

**Gold nanostars**

- Are novel star-shaped gold nanoparticles with interesting properties for different applications such as plasmonics, spectroscopy, biomedicine, biosensor, medical diagnostics, cancer therapies and energy conversion.

**Technical specifications**

- **Technical name**: AuNStars@PVP
- **Size (nm)**: 40
- **Stabilizer**: PVP
- **Dispersion medium**: Water, alcohols, THF, DMF
- **Nucleus material**: Au
- **Nucleus size (nm)**: 40
- **Coating material**: -
- **Coating thickness (nm)**: -
- **Absorbance maximum wavelength (nm)**: 800
- **Equivalence 1OD (mg/ml)**: 0.037
- **Minimum Stability period (months)**: 12
- **Storage temperature (°C)**: 20 – 25 (4 – 6 for THF)
Silica coated Gold nanostars apart from the advantages of Gold nanostars, the silica coating provides another versatile conjugation surface.

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Technical name</th>
<th>AuNStars@SiO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (nm)</td>
<td>50</td>
</tr>
<tr>
<td>Stabilizer</td>
<td>-</td>
</tr>
<tr>
<td>Dispersion medium</td>
<td>Alcohols</td>
</tr>
<tr>
<td>Nucleus material</td>
<td>Au</td>
</tr>
<tr>
<td>Nucleus size (nm)</td>
<td>40</td>
</tr>
<tr>
<td>Coating material</td>
<td>SiO₂</td>
</tr>
<tr>
<td>Coating thickness (nm)</td>
<td>10 - 30</td>
</tr>
<tr>
<td>Absorbance maximum wavelength (nm)</td>
<td>815</td>
</tr>
<tr>
<td>Equivalence 1OD (mg/ml)</td>
<td>0.067</td>
</tr>
<tr>
<td>Minimum Stability period (months)</td>
<td>12</td>
</tr>
<tr>
<td>Storage temperature (°C)</td>
<td>20 – 25</td>
</tr>
</tbody>
</table>
**Gold nanorods**, apart from the advantages of Gold nanoparticles, the silica coating provides another versatile conjugation surface.

![Absorbance graph](image)

![Micrograph](image)

### TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical name</td>
<td>AuNRs@CTAB</td>
</tr>
<tr>
<td>Size (nm)</td>
<td>84x24</td>
</tr>
<tr>
<td>Stabilizer</td>
<td>CTAB</td>
</tr>
<tr>
<td>Dispersion medium</td>
<td>water</td>
</tr>
<tr>
<td>Nucleus material</td>
<td>84x24</td>
</tr>
<tr>
<td>Nucleus size (nm)</td>
<td>14</td>
</tr>
<tr>
<td>Coating material</td>
<td>-</td>
</tr>
<tr>
<td>Coating thickness (nm)</td>
<td>-</td>
</tr>
<tr>
<td>Absorbance maximum wavelength (nm)</td>
<td>770</td>
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<tr>
<td>Equivalence 1OD (mg/ml)</td>
<td>0.016</td>
</tr>
<tr>
<td>Minimum Stability period (months)</td>
<td>3</td>
</tr>
<tr>
<td>Storage temperature (°C)</td>
<td>25 - 27</td>
</tr>
</tbody>
</table>

**Gold nanorods** are gold nanoparticles with a core-shell structure, where the core is composed of gold nanoparticles and the shell is made of silica, providing a stable and versatile conjugation surface for various applications.
Quantum Dots (QDs) are nanoparticles (3-4 nm) of semiconducting materials. Their luminescence properties make them an attractive alternative to conventional luminophores, and for other numerous applications.

- **QDs/CdSe**: Quantum Dots (QDs) with a CdSe core. Max abs: 560 ± 5 nm, 575 ± 5 nm or 590 ± 5 nm. Dispersed in chloroform.

- **QDs/CdSe/ZnS**: Quantum Dots (QDs) with a CdSe core and a ZnS shell. Max abs: 580 ± 5 nm, 590 ± 5nm or 615 ± 5 nm. Dispersed in chloroform or water.
CONJUGATED NANOPARTICLES
Nanovex Biotechnologies offers streptavidin conjugated SPHERICAL gold, silver and gold-silver alloy nanoparticles.

Nanovex streptavidin conjugated nanoparticles has an excellent QUALITY:

• Narrow size distribution
• Batch-to-batch consistency
• Full characterization data with all products.
• Product Quality Guarantee.
• Support and service from our nanomaterials experts.

Nanovex Biotechnologies streptavidin nanoparticles can be employed for binding to several biotinylated ligand, like as antibodies, peptides or other biomolecules.

Streptavidin nanoparticles can be used in many applications such as protein conjugation, western blot/dot blot, immunohistochemistry, lateral flow assays, ELISA or dark field microscopy.
Nanovex Biotechnologies offers streptavidin conjugated nanovesicles. Available on all nanovesicles of our catalogue.

Nanovex streptavidin conjugated nanovesicles has an excellent QUALITY:

• Narrow size distribution
• Batch-to-batch consistency
• Full characterization data with all products.
• Product Quality Guarantee.
• Support and service from our nanomaterials experts.

Nanovex Biotechnologies streptavidin nanovesicles can be employed for binding to several biotinylated ligand, like as antibodies, peptides or other biomolecules.

Streptavidin nanovesicles can be used in many applications such as protein conjugation, western blot/dot blot, immunohistochemistry, lateral flow assays, ELISA or dark field microscopy.
PLGA Nanoparticles
Poly(lactic-co-glycolic acid) (PLGA) is one of the most successfully developed biodegradable polymers. PLGA is a biocompatible, biodegradable and safely administrable polymer approved by the US FDA (Food and Drug Administration) and EMA (European Medicines Agency).

Nanovex Biotechnologies provides plain polymeric biodegradable nanoparticles (Nps) based on poly(lactide-co-glycolide) (PLGA) acid terminated with a lactide/glycolide ratio of 50/50 and a molecular weight of 32000 Da. There are different types of PLGA nanoparticles so that our clients can select the nanoparticle that best suits their needs. In addition, these nanoparticles can be externally functionalized with different compounds (NH$_2$+, PEI, proteins, ...).

PLGA nanoparticles are available in various sizes of 50, 100 and 200 nm.
PLGA Standard nanoparticles can encapsulate both hydrophilic and lipophilic compounds. These nanoparticles are negative charged and they are available in different sizes (50, 100 or 200 nm).

PLGA-FLUO nanoparticles can encapsulate both hydrophilic and lipophilic compounds. These nanoparticles can show different types of fluorescence (green, red or pH sensitive fluorescence) and they are available in different sizes (50, 100 or 200 nm).

PLGA-PEI nanoparticles can encapsulate both hydrophilic and lipophilic compounds. These nanoparticles are positive charged due to the surface modification with PEI. PLGA-PEI nanoparticles are recommended for gene or drug delivery (intracellular delivery) and they are available in different sizes (100 or 200 nm).

PLGA-PEG nanoparticles can encapsulate both hydrophilic and lipophilic compounds. These nanoparticles are surface modified with PEG and they are recommended for “in vivo” assays. PLGA-PEG nanoparticles are available in different sizes (100 or 200 nm).

PLGA-PEI-FLUO nanoparticles can encapsulate both hydrophilic and lipophilic compounds. These nanoparticles are positive charged due to the surface modification with PEI and they can show different types of fluorescence (green, red or pH sensitive fluorescence). They are recommended for gene or drug delivery (intracellular delivery) with fluorescence detection. PLGA-PEI-FLUO nanoparticles are available in different sizes (100 or 200 nm).

PLGA-PEG-FLUO nanoparticles can encapsulate both hydrophilic and lipophilic compounds. These nanoparticles are surface modified with PEG and they can show different types of fluorescence (green, red or pH sensitive fluorescence). They are recommended for “in vivo” assays with fluorescence detection. PLGA-PEG-FLUO nanoparticles are available in different sizes (100 or 200 nm).

Nanovex offers a customized service to design, develop and produce specific PLGA nanoparticles suitable for drug delivery, targeted drug delivery, gene delivery, theranostics, modeled to the specific needs of the customers.
The practice nanoencapsulation kit offers a clear and pedagogic method for learning about nanoencapsulation and purification techniques.

Practice Nanoencapsulation kit to nanoencapsulate fluorescein into nanovesicles and to determine entrapment efficiency.

The kit is composed by:

A. Size Exclusion Chromatography (SEC) Column
B. Pronanosome (Product to form nanovesicles)
C. Fluorescein solution (100 μM)

Elution profile obtained from a 200 μl sample of nanovesicles containing fluorescein and unencapsulated fluorescein (1 ml fractions)
OTHER PRODUCTS
Check out our reagents of labeling technologies! These products provide researchers more flexibility and choice for their experiments. For more information or questions, please, contact us!

• Streptavidin-fluorescein

• Streptavidin-SATA

• Streptavidin-maleimide

• Albumin-Biotin

• Albumin-fluorescein

• HRP-SATA

• HRP-biotin

• HRP-maleimide

• Sulfo-NHS-biotin
Size Exclusion Chromatography (SEC) COLUMNS

Our SEC columns are available with different resins and volumes.

Applications:

- Desalting
- Protein purification
- Nanovesicles purification
- Others

**Eviso-Column**

The **Nanovex-Eviso Column** allows quick and economical **exosome purifications**. The Nanovex-EViso columns are shipped containing ultrapure water/ethanol (20% v/v ethanol) as a preservative.

**SEC5K-Column**

The **Nanovex-SEC5K column** allows quick and economical **purifications** (protein, nanovesicle or nucleic acid) with exclusion limits of 5 kDa. The Nanovex-SEC5K columns are shipped containing ultrapure water/ethanol (20% v/v ethanol) as a preservative.
SERVICES
NANOENCAPSULATION OF COMPOUNDS

Nanoencapsulation of compounds/biomolecules (molecules, peptides, proteins and DNA, among others) in nanovesicles or PLGA nanoparticles for different applications.

CUSTOM NANOSYSTEMS

Nanovex develops custom nanovesicles or nanoparticles in order to meet your requirements:

• Formulation
• Size and distribution
• Z-Potential
• Surface modification

SURFACE MODIFICATION

Surface modification of nanovesicles and nanoparticles allows to achieve different delivery strategies such as:

• Long-circulating liposomes
• Intracellular delivery
• Targeted delivery

DELIVERY STUDIES

Delivery studies of the final encapsulated compound, peptide or protein, can be performed by Nanovex, for instance, simulating different conditions:

• Gastric conditions
• Intestinal conditions
• Dermal/Transdermal assays

How do we work?

1. Select the right system
2. Send the compound to encapsulate
3. After 2-4 weeks, Nanovex will provide your system with a full characterization
Nanovex has a wide experience in the field of surface modification of both nanoparticles and nanovesicles with different biomolecules, apart from the bioconjugation of proteins and DNA with different labels. After the surface modification or bioconjugation process, the product is purified and fully characterized in order to get a high quality and purified surface modified final product.

**SURFACE MODIFICATION – OPTION 1**

**Nanomaterials to modify:** Nanoparticles and nanovesicles  
**Technique:** Passive adsorption / Covalent conjugation  
**Characterization:** UV-VIS

**SURFACE MODIFICATION – OPTION 2**

**Nanomaterials to modify:** Nanoparticles and nanovesicles  
**Technique:** Passive adsorption / Covalent conjugation  
**Characterization:** ICP-MS

**BIOCONJUGATION**

**Biomolecules to modify:** Antibodies, enzymes, proteins, and DNA.  
**Technique:** Covalent conjugation  
**Characterization:** UV-VIS / ICP
EXOSOME CHARACTERIZATION

Exosomes are one of the most interesting biological microvesicles due to the potential source of information contained inside these particles.

Our facilities have the highest technology such as the Nanoparticle Track Analysis (NTA) Technology, based on the analysis of Brownian motion, which is able to determine the **size, size distribution and the exosome concentration** in the sample.

SPECIFIC EXOSOME CHARACTERIZATION

Apart from the analysis of exosome size and concentration, NTA analysis also enabled an evaluation of a subpopulation of exosomes which possess a specific biomarkers over their surface. This goal can be achieved by using an appropriate fluorescent antibody or molecule to label the exosome of interest.
NANOMATERIAL CHARACTERIZATION

The service is focused on the characterization of nanomaterials (metallic nanoparticles, polymeric nanoparticles and nanovesicles, among others) as well as other similar systems ranging from 0.3 nm to 100 μm. In addition to nanomaterial characterization, Nanovex offers personalized advice and technical assistance.

The following parameters can be determined: Size, size distribution, Nanoparticle/Nanovesicle Concentration, Z-Potential, Morphology, Entrapment Efficiency, Structural Analysis, Fluorescence and Stability.