NANOVEX

Biotechnologies S.L.

CATALOGUE

2017

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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


NANOVEX
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NANOVEX
PRONANOSOMES
Lipo-N


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PRONANOSOMES

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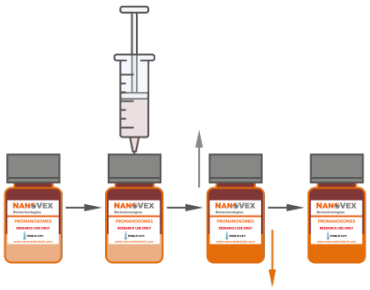
PRONANOSOME SERIES

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

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

Food
- •Functional foods
- •Superfoods
- •Dairy products
- •Others

Others
- •Biotechnology
- •Diagnostics
- •Cosmetics
- •Bioengineering
- •New pharma products
- •Transfection

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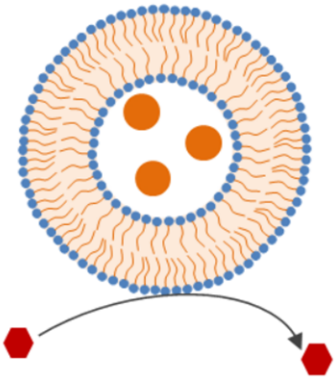
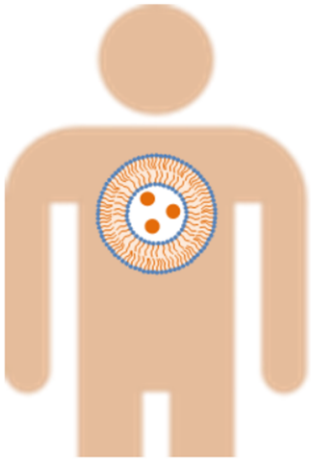
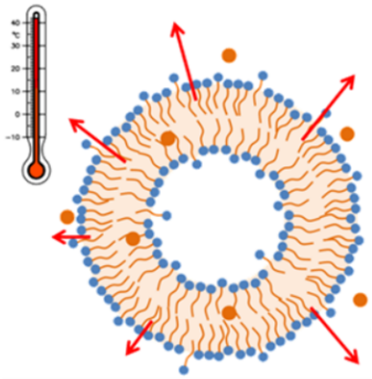
PRONANOSOME SERIES



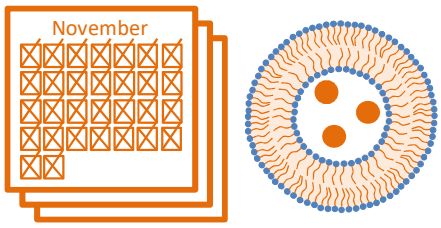
Encapsulated compound protection



Increased bioavailability



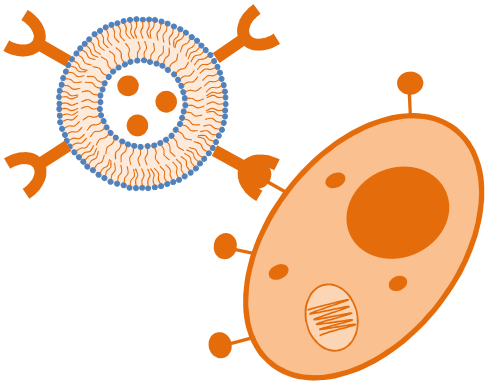
Controlled delivery



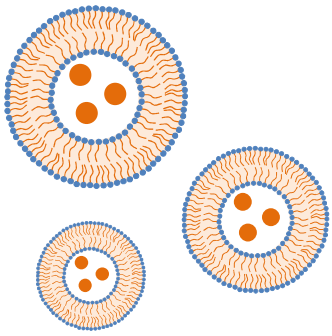
Great stability

ADVANTAGES

Masking undesired tastes



Targeted delivery



Size control

Easy and fast

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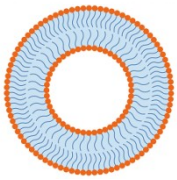
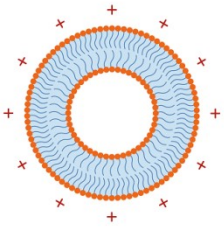
PRONANOSOME SERIES



Pronanosome Nio-N

Niosomes. Economic, stable and versatile nanovesicles.

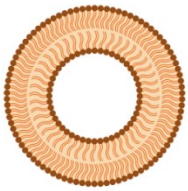
Stability ■■■■◧ **Size and distribution** ■■■■□



Pronanosome Nio-Cat

Cationic Niosomes. High stability nanovesicles.

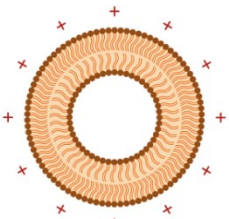
Stability ■■■■■ **Size and distribution** ■■■■□



Pronanosome Lipo-N

Liposomes. Lipid and versatile nanovesicles with high biocompatibility.

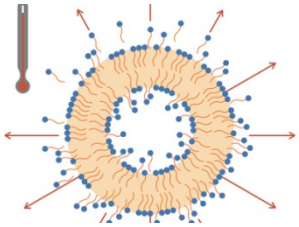
Stability ■■■■□ **Size and distribution** ■■■■■



Pronanosome Lipo-Cat

Cationic liposomes. Lipid and versatile cationic nanovesicles with high biocompatibility and stability.

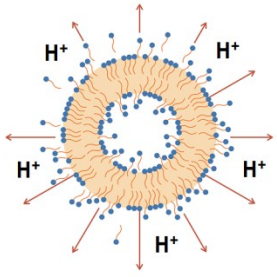
Stability ■■■■■ **Size and distribution** ■■■■■



Pronanosome Thermo

Thermosensitive nanovesicles. Lipid nanovesicles able to release their content at 42 °C.

Stability ■■■■■ **Size and distribution** ■■■■□

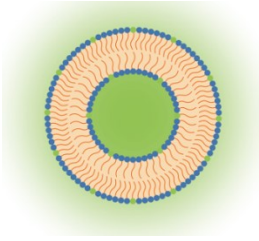


Pronanosome pH

Thermosensitive nanovesicles. Lipid nanovesicles able to release their content at pH lower than 5

Stability ■■■■■ **Size and distribution** ■■■■□

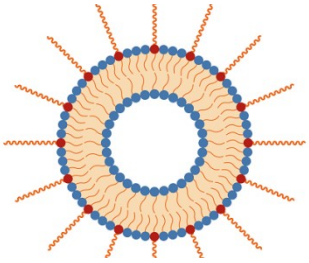
AVAILABLE PROPERTIES



Fluorescent

Available for all PRONANOSOMES.

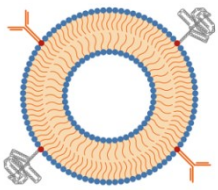
Your PRONANOSOME ready to obtain fluorescently labeled nanovesicles



PEGylated

Available for all PRONANOSOMES.

Your PRONANOSOME ready to obtain PEGylated nanovesicles



Bioconjugable

Available for all PRONANOSOMES.

Your pronanosome ready to be bioconjugated

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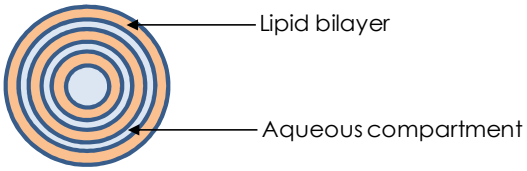
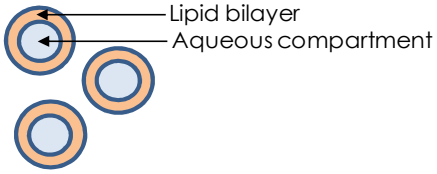
PRONANOSOME SERIES

PRONANOSOME – HOW TO USE?



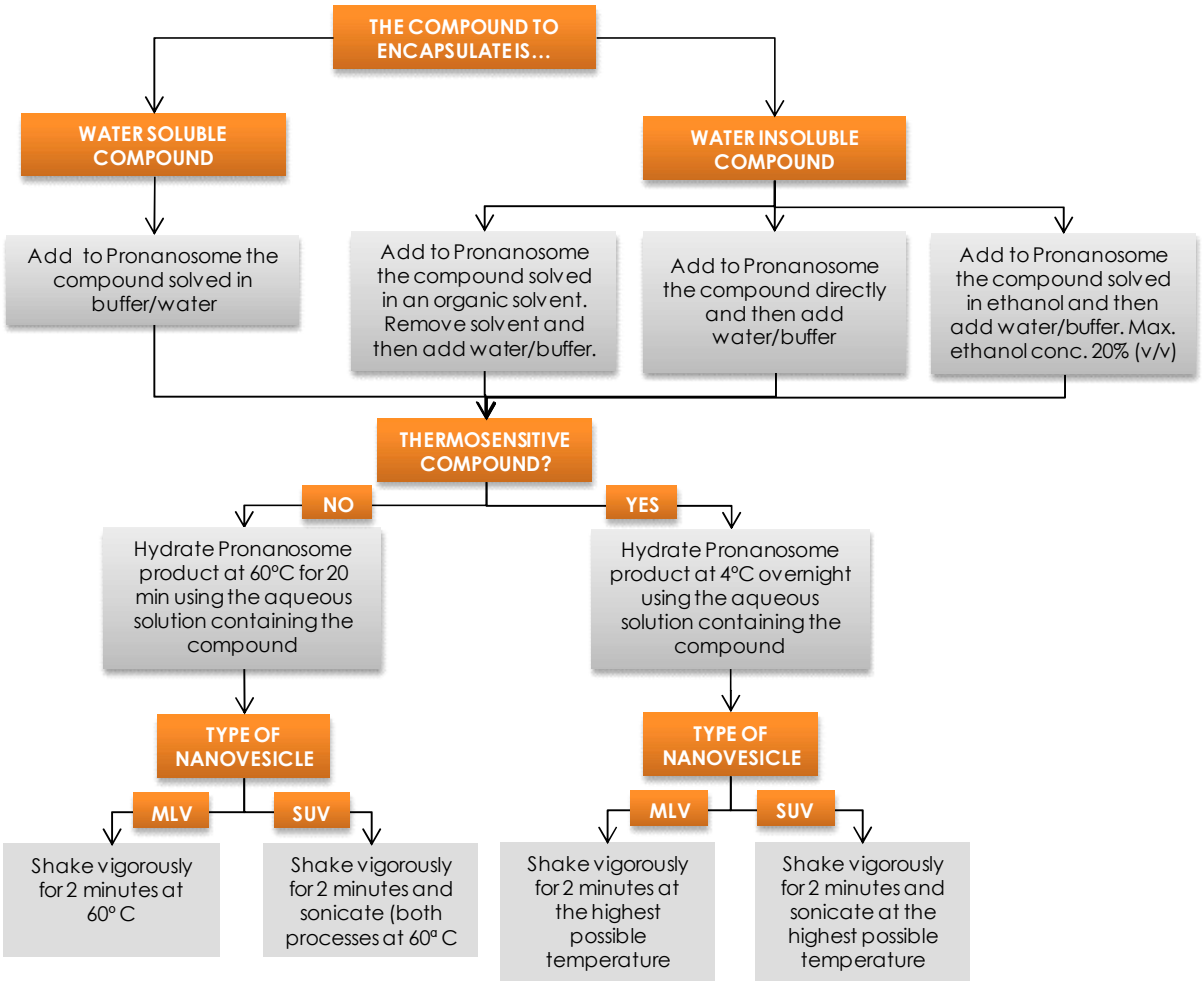
MultiLamellar Vesicles (MLV)

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



Small Unilamellar Vesicles (SUV)

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



METALLIC NANOPARTICLES

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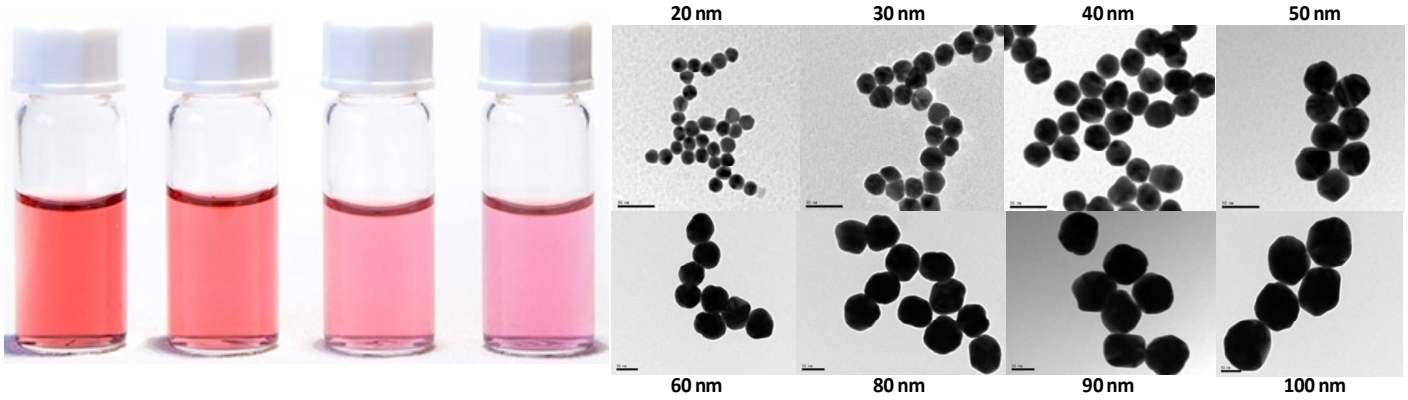
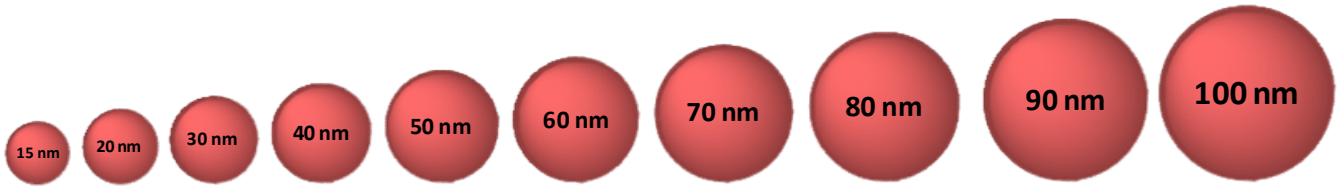
GOLD NANOPARTICLES

Nanovex Biotechnologies offers SPHERICAL gold nanoparticles which are citrate capped.

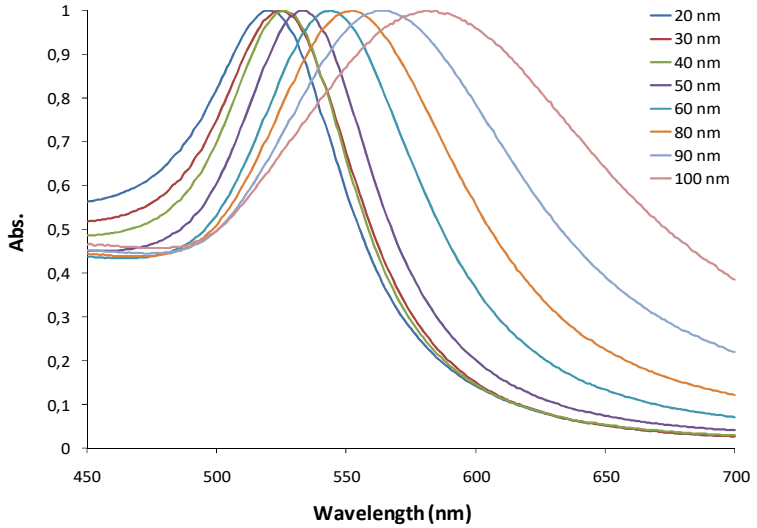


Our gold nanoparticles are available in different sizes ranging from 15 to 100 nm.

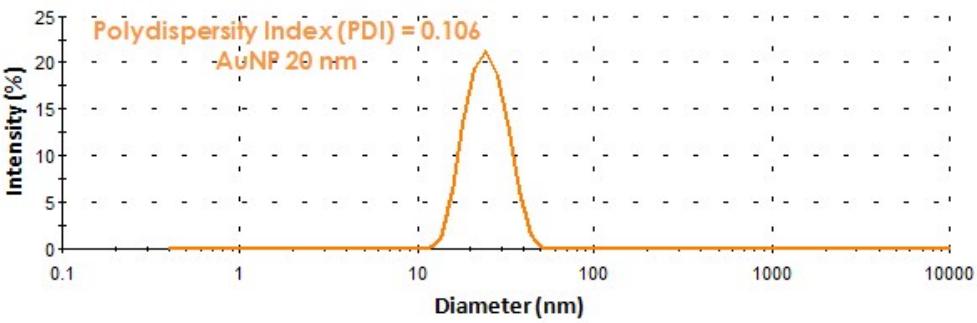


UV-Vis spectra showing optical properties of gold nanoparticles of different sizes.

SIZE	PEAK (nm)
20 nm	521
30 nm	524
40 nm	526
50 nm	533
60 nm	542
80 nm	553
90 nm	564
100 nm	583



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



SIZE	PDI
20 nm	0.106
30 nm	0.189
40 nm	0.176
50 nm	0.156
60 nm	0.179
80 nm	0.188
90 nm	0.178
100 nm	0.148

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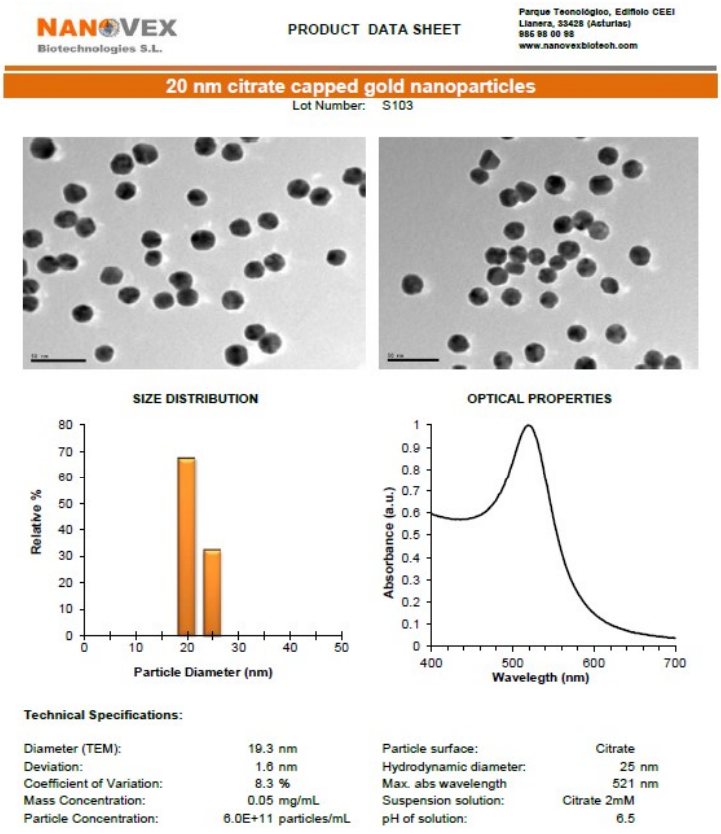
GOLD NANOPARTICLES

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.**

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



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PRODUCT DATA SHEET

Parque Tecnológico, Edificio CEEI
Llanera, 33428 (Asturias)
985 98 00 98
www.nanovexbiotech.com

20 nm citrate capped gold nanoparticles

Lot Number: S103

Technical Specifications:

Diameter (TEM):	19.3 nm	Particle surface:	Citrate
Deviation:	1.6 nm	Hydrodynamic diameter:	25 nm
Coefficient of Variation:	8.3 %	Max. abs wavelength	521 nm
Mass Concentration:	0.05 mg/mL	Suspension solution:	Citrate 2mM
Particle Concentration:	6.0E+11 particles/mL	pH of solution:	6.5

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

APPLICATION	SIZE	SURFACE FUNCTIONALIZATION
Protein conjugation	15-100	Citrate, streptavidin, carboxyl
Modification with thiolated ligands	15-100	Citrate
Western blot/dot blot	15	Streptavidin
Immunohistochemistry	15-40	Streptavidin
Flow citometry	50-100	Citrate
Cellular uptake	30-60	Citrate
Lateral flow immunoassays	30-80	Citrate, streptavidin, carboxyl
ELISA	15-30	Streptavidin
Dark field microscopy	50-100	Streptavidin

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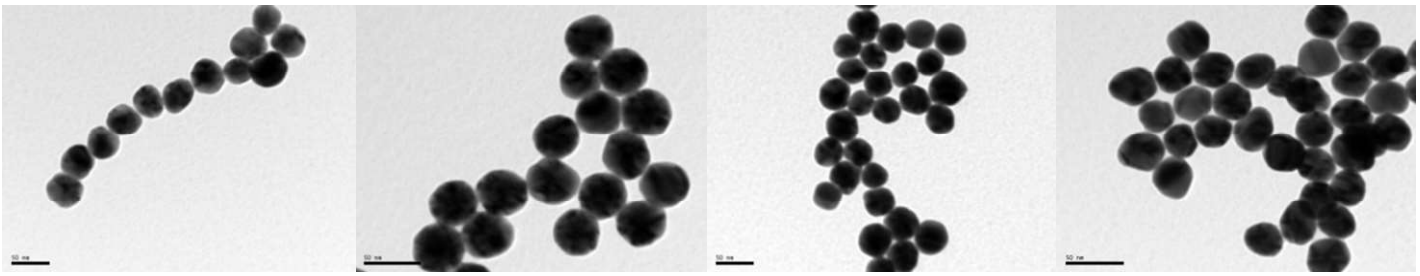
GOLD/SILVER ALLOY NANOPARTICLES

Nanovex Biotechnologies gold/silver alloy nanoparticles are synthesized through citrate reduction method in absence of additional stabilizing agents.

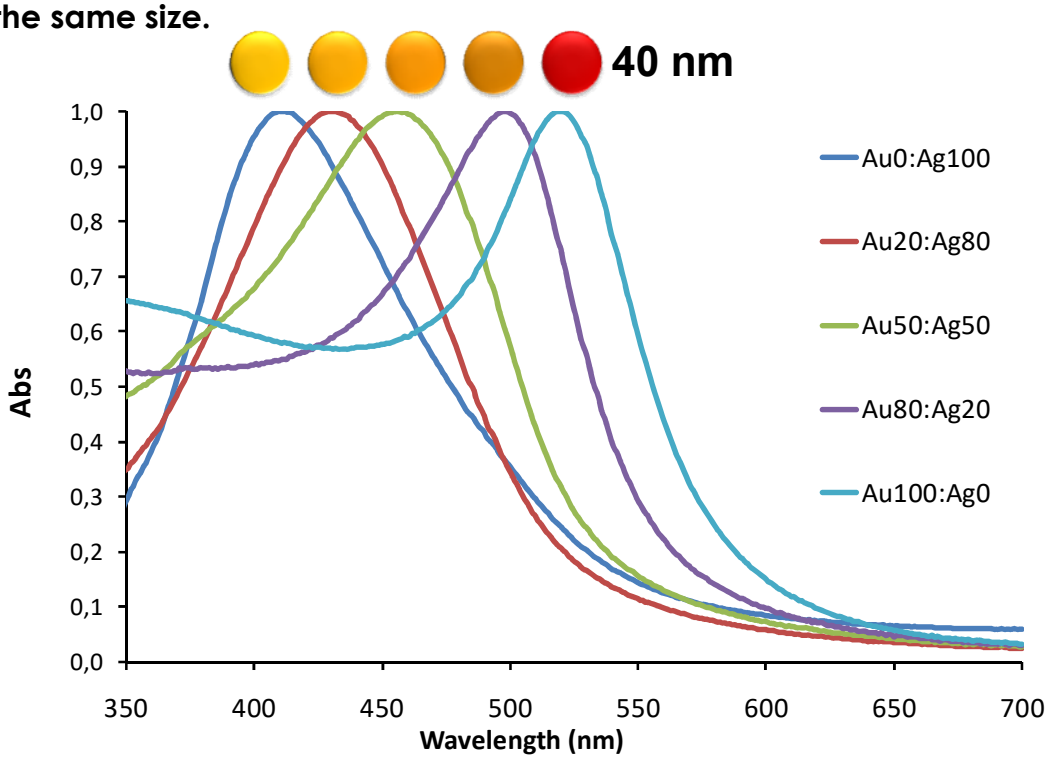
100 % Ag → **100 % Au**

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



Au0:Ag100 **Au20:Ag80** **Au50:Ag50** **Au100:Ag00**

The optoelectronic properties of these alloyed nanoparticles differ from pure gold or silver nanoparticles of the same size.



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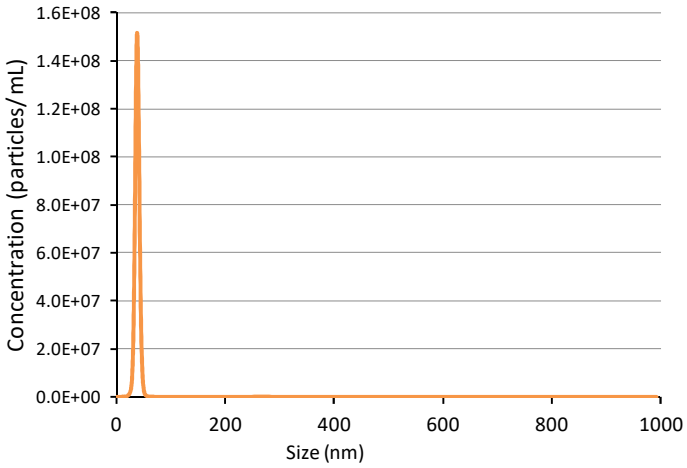
GOLD/SILVER ALLOY NANOPARTICLES

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.

COMPOSITION	SIZE	PEAK (nm)
Au0:Ag100	40 nm	411
Au20:Ag80	40 nm	431
Au50:Ag50	40 nm	456
Au80:Ag20	40 nm	498
Au100:Ag0	40 nm	526

Our gold/silver nanoparticle are also a alternative in the development of nanomaterial bioconjugates, electrocatalityc applications or biosensing with multiplexed detection.

APPLICATION	SURFACE FUNCTIONALIZATION
Protein conjugation	Citrate, streptavidin, carboxyl
Modification with thiolated ligands	Citrate
Western blot/dot blot	Streptavidin
Immunohistochemistry	Streptavidin
Cellular uptake	Citrate
Lateral flow immunoassays	Citrate, streptavidin, carboxyl
ELISA	Streptavidin
Dark field microscopy	Streptavidin

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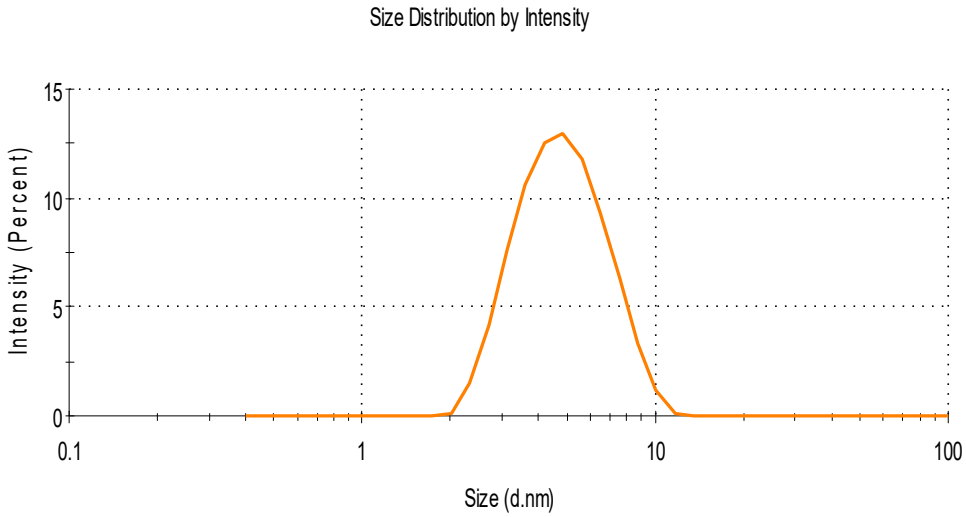
CARBON DOTS

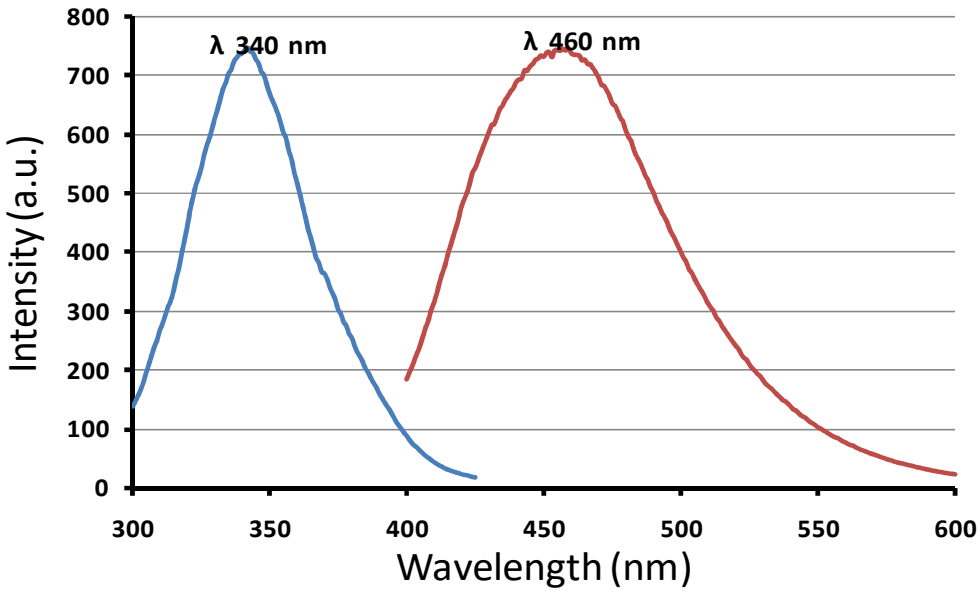
Carbon dots is a new class of fluorescent carbon nanomaterials.

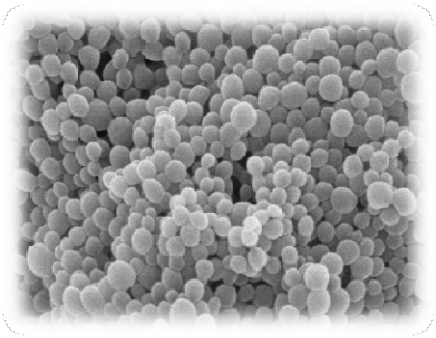
Carbon dots possess the attractive properties of high stability, good conductivity, low toxicity, environmental friendliness, simple synthetic routes as well as comparable optical properties to quantum dots



Applications

- **Bioimaging**
- **Sensing**
- **Drug delivery**
- **Catalysis**
- **Optoelectronics**





PLGA

Nanoparticles

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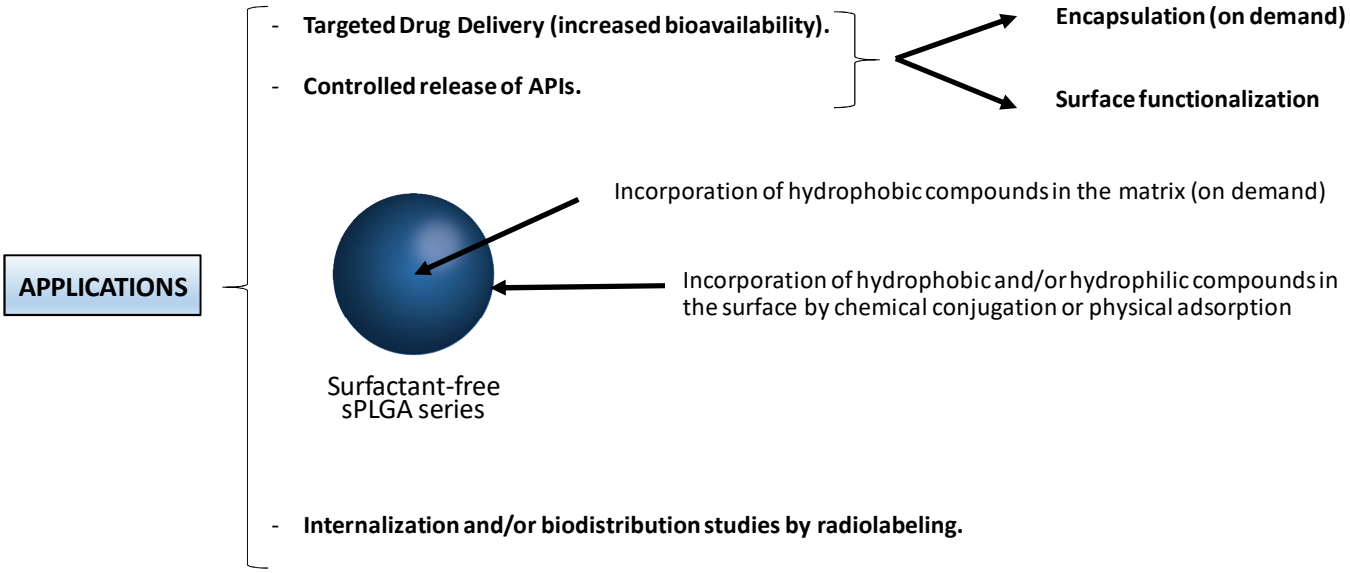
sPLGA nanoparticles

(plain poly(lactide-co-glycolide) nanoparticles with a solid matrix of polymer)

sPLGA Nano-scale particles that are able to incorporate hydrophobic compounds inside (on demand) or hydrophobic and/or hydrophilic compounds in their surface by chemical conjugation or physical adsorption. The main application of this type of spheres are: drug delivery and targeting with an increased bioavailability, controlled release of active pharmaceutical ingredients, internalization and/or biodistribution studies by radiolabeling, etc.



sPLGA-50:highly monodisperse 50 nm PLGA nanoparticles

Average size by number: 48.89 nm (± 5.635) Average PDI: 0.088 (± 0.019)

Z-potential:- 34.8 mV (± 1.27)

sPLGA-100: highly monodisperse 100 nm PLGA nanoparticles

Average size by number: 100.7 nm (± 5.299) Average PDI: 0.122 (± 0.038)

Z-potential: – 33.5 mV (± 0.557)

sPLGA-150: highly monodisperse 150 nm PLGA nanoparticles

Average size by number: 150.5 nm (± 5.952) Average PDI: 0.096 (± 0.029)

Z-potential: – 31.9 mV (± 0.862)

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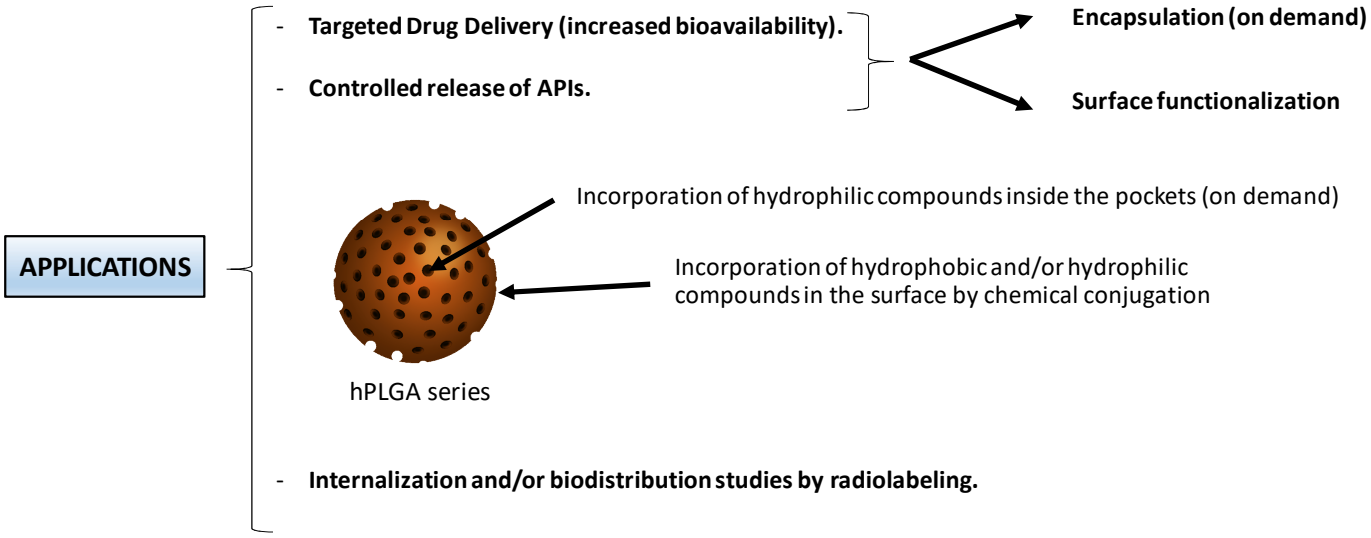
hPLGA nanoparticles

(plain poly(lactide-co-glycolide) nanocapsules with hydrophobic pockets)

hPLGA Nano-scale capsules (nanoparticles with hydrophilic pockets) that are able to entrap hydrophilic molecules inside (on demand) or hydrophobic and/or hydrophilic compounds in their surface by chemical conjugation.The main application of this type of spheres are: drug delivery and targeting with an increased bioavailability, controlled release of active pharmaceutical ingredients, internalization and/or biodistribution studies by radiolabeling, etc.



hPLGA: highly monodisperse 200 nm PLGA nanocapsules with a negative surface charge

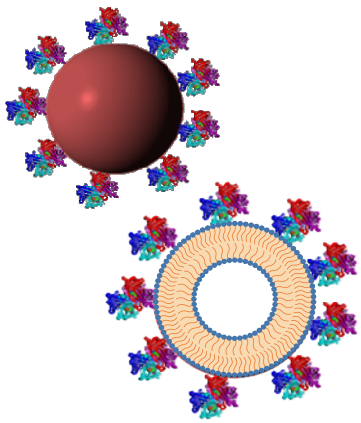
Average size by number: 198.7 nm (± 6.689) Average PDI: 0.065 (± 0.023)

Z-potential: – 23.0 mV (± 0.404)

hPLGA-PEI: highly monodisperse 220 nm PLGA nanocapsules with a positively charge surface due to the incorporation of polyethylenimine (PEI) to the PLGA matrix.

Average size by number: 223.4 nm (± 2.287) Average PDI: 0.078 (± 0.023)

Z-potential: +27.0 mV (± 0.721)



CONJUGATED NANOPARTICLES

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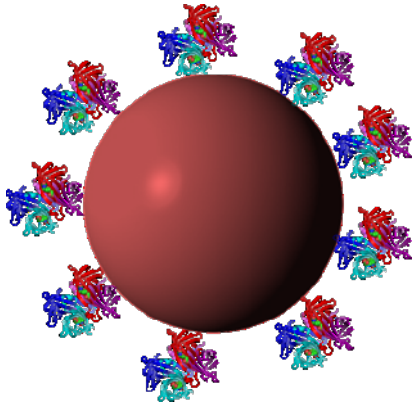
CONJUGATED METALLIC NANOPARTICLES

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.

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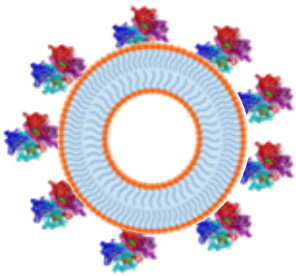
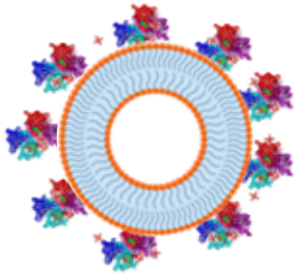
CONJUGATED NANOVESICLES

Nanovex Biotechnologies offers streptavidin conjugated nanovesicles. Available on all nanovesicles of our catalogue



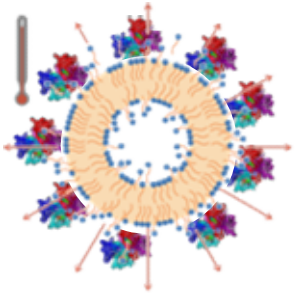
Nio-N



Nio-Cat

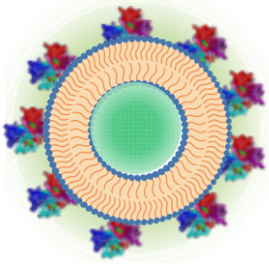
Lipo-N

Lipo-cat

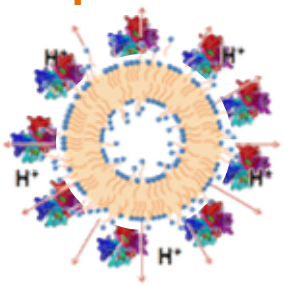


Thermo

Pegylated



Fluorescent

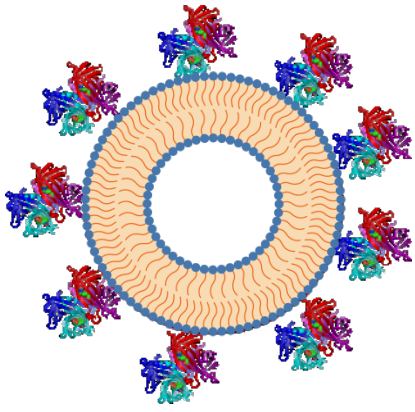


pH

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.

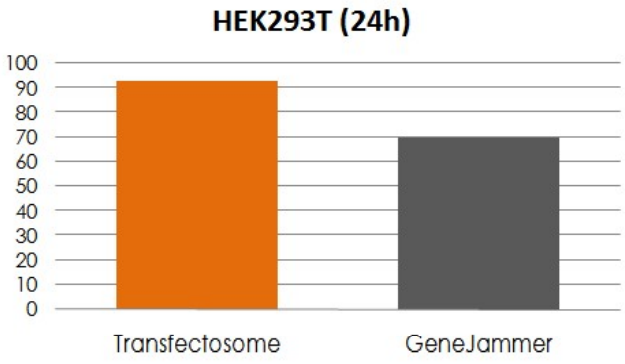
TRANSFECTOME

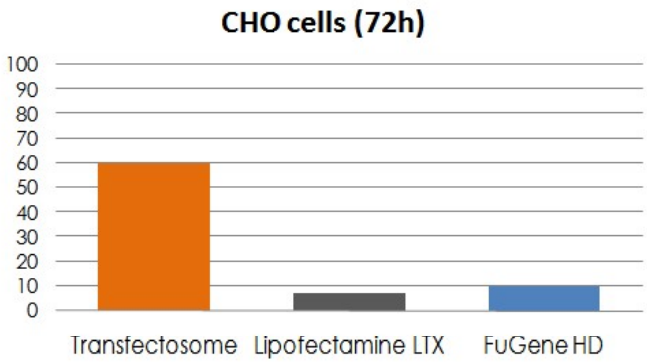
Transfection Reagents

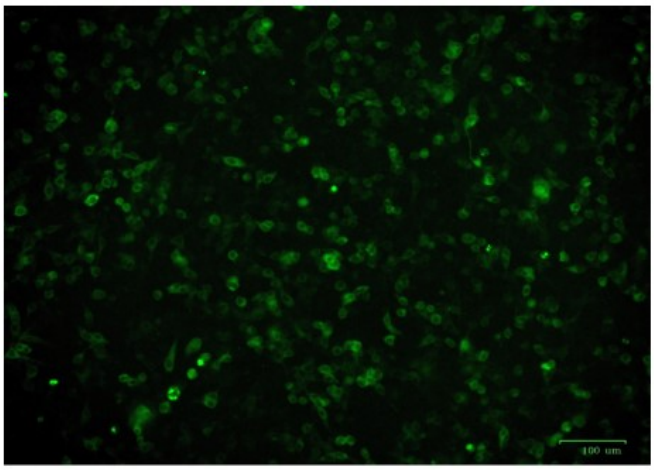
TRANSFECTOSOME

Transfection Reagents

Transfectosome-N is a new and highly effective transfection reagent based on nanovesicles and developed by Nanovex Biotechnologies. Transfectosome is easy to use providing high minimal cytotoxicity.







Advantages

- High transfection efficiency
- Minimal citotoxicity
- Profitability
- Economic
- Easy to use

Secondary reagents

NANOVEX
Biotechnologies S.L.

SECONDARY REAGENTS

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
- Sulf-NHS-biotin

COMING SOON

NANOVEX
Biotechnologies S.L.

COMING SOON

Nanovex Biotechnologies is continuously working in the development and innovation of new products in the nanobiotechnology field.

If you are interested in any of these products, **contact us!**

Size Exclusion Chromatography (SEC) COLUMNS

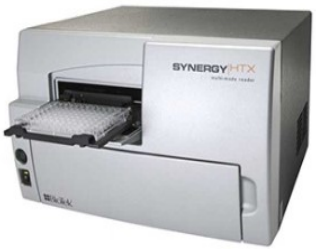
TRANSFECTOME
Transfection Reagents

NEW TRANSFECTION REAGENTS

MAGNETIC-PLGA NANOPARTICLES

CERIUM OXIDE NANOPARTICLES

SERVICES



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SERVICES

ENCAPSULATION

Encapsulation of compounds into nanovesicles or PLGA nanoparticles is an interesting technique employed in medical, food, pharmaceutical and cosmetic industries. The encapsulation provides several benefits such as: protection of the encapsulated compound, better bioavailability, masking undesired tastes, stabilization of the encapsulated compound, controlled delivery, targeted delivery, etc.

Our technology and experience in the encapsulation of compounds allow us to develop different types of nanovesicles and nanoparticles in order to select the optimal system for the desired application.

Nanovex Biotechnologies offers different encapsulation services to suit customer requirements, from basic encapsulation service (Service 1) to full encapsulation service (Service 4).

Service 1	Service 2	Service 3	Service 4
Encapsulation using Pronanosomes/PLGA	Encapsulation using Pronanosomes/PLGA	Encapsulation using Pronanosomes/PLGA	Encapsulation using optimal formulation
		Optimization of parameters (formulation and methods)	Optimization of parameters (formulation and methods)
Characterization: •Size •Distribution •PDI •Entrapment efficiency	Characterization: •Size •Distribution •PDI •Entrapment efficiency	Characterization: •Size •Distribution •PDI •Entrapment efficiency	Characterization: •Size •Distribution •PDI •Entrapment efficiency
	Other studies: •Release •Stability	Other studies: •Release •Stability	Other studies: •Release •Stability
From 400€	**From 650 €**	**From 950 €**	**Request a quote**

NANOVEX
Biotechnologies S.L.

SERVICES

CHARACTERIZATION

The service focus on the characterization of nanomaterials ranged from 0.3 nm to 100 µm as well as personal advicing and technical assistance.
Nanovex Biotechnologies SL has a team with broad experience in the characterization of diverse nanomaterials. In addition, our facilities are equipped with the latest characterization technology.

Our aim is to offer a fast and personalized service, including data processing and technical advice in order to improve the sample characteristics and to provide as information as possible to evaluate the nanomaterial.

The following parameters can be determined: average size, size distribution, Z potential, stability, morphology and nanoparticle concentration among others. The techniques employed to characterize the samples/for the characterization are:

- Dynamic Light Scattering (Zetasizer Nano ZS90)
- Nanoparticle Tracking Analysis (Nanosight LM10, sCMOS camera)
- Multiple Light Scattering (Turbiscan Lab Expert)
- Mixed Mode Measurement – Phase Analysis Light Scattering (Zetasizer Nano ZS90)
- Optical microscopy
- Scanning electron and transmission electron microscopy
- X-ray difraction
- Chomatography
- Etc.

CUSTOMIZED NANOMATERIALS

Nanovex Biotechnologies has a team with a broad experience in the modification of nanomaterials with antibodies, enzimes and other proteins.

Our team can modify our standard nanovesicles or nanoparticles or develop new materials to meet your needs.

NANOVEX
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