



## **Spanish White Biotech Pipeline\***

						TECHNOLOGIES						
LOGO	COMPANY	NAM	E			INDICATION		BASIC R&D	APPLIED R&D	READY FOR EXPLOTATION	AVAILABLE	TECHNOLOGY E TRANSFER IN PROGRESS
✓ ALGAENERG	<b>ALGAENERGY</b>					Microalgae Production Technology for several applications					<b>✓</b>	rnuun±33 √
<b>≪</b> ALGAENERG						Microalgae production facilities, technologies, control and harvesting systems					✓	✓
. В юснемих						Enzymatic technological platform for advanced esterification reactions					✓	✓
. В юснемии		nn.				Enzymatic technological platform for advanced aldolic reactions					<b>√</b>	
.Воснемии воснемии		PB SC-er	7			Screening for microbial and enzymatic biocatalysis  Enzymatic screening for modification of chemical structures						<b>√</b>
. В юснемии	Bioibérica	Su-ei CropS				Bioinformatic tools for genetic diagnosis					<b>√</b>	
A Biomeda		CASC				Bacterial expression system						
bionaturisgroup		FLYPI				Recombinant expression of second generation vaccines (VLPs, chimeric, subunits)					✓ /	
bionaturisgroup	P Bionaturis	FLYLI	E			Baculovirus expression system. MVB, WSVB, upstream development, downstream d	levelopment, analytical development, scale-up				1	✓
(iii) bionet'	BIONET INGENIERÍA	BION	T			Serial Membrane filtration units					✓	
(iii) bionet'	BIONET INGENIERÍA	BION	T			Fermentation technologies					✓	
(iii) bionet'	BIONET INGENIERÍA	BION				Membrane filtration technologies					✓	
bionet'	BIONET INGENIERÍA	BION				Serial 5 L. Bioreactor					<b>√</b>	
bionet'	BIONET INGENIERÍA Bionet ingeniería	BION BION				Serial 350-1000 L. Bioreactor Serial CIP units					<b>√</b>	
3	BIOPOLIS	Bio-C				High added value compounds extraction						
Hopoks	BIOPOLIS	Bio-C				Recombinant protein expression for therapeutic and diagnostic application						
Bio ₹aw	Bioraw	DIO 0				Industrial fermentation						
( Bio ₹aw	Bioraw	Ps				Sterile final pharmaceutical forms						
BIOSEARCH	BIOSEARCH LIFE					Screenings for antimicrobial, antiobesity, inhibitory of cholesterol absorption activit	ty				1	
	BIOSEARCH LIFE					Testing laboratory accredited by ENAC according to ISO17025					✓	
	BIOSEARCH LIFE	GO-FI	NCTIONAL®			Functional food development service (Laboratories, Pilot Plant, Sensory analysis, Si	tability trials & Packaging)				✓	
ecocelta	200001111 01111 0121					Biosimilars monoclonal antibodies Platform					<b>√</b>	
	Fundacion MEDINA	MEDI	•			Bioactive Molecule Discovery Platform					<b>√</b>	
	Fundacion MEDINA Fundacion MEDINA	MEDI	icro nemistry			Microbial Fermentation & Scale Up Platform					✓ ✓	
	Fundacion MEDINA	MEDS	•			LCMS & NMR Analytical Platform  High Throughput Screening of Biotechnological Products						
	Fundacion MEDINA	MLDC	oroon			Bioanalysis mass spectrometry platform						
GEN•MICA	GENOMICA	AUTO	CLART PLUS			Microplate processor to visualize and read samples to diagnosis.					/	
C	Ingeniatrics	FLOW	FOCUSING ®			One step microencapsulation producing small & homogeneous spheres, core-shell,	double-shell particles				✓	✓
C	Ingeniatrics	FLOW	BLURRING ®			Highly efficient spray of extremely fine droplets production					✓	✓
0	Ingeniatrics	MICR	DPARTICLES MANUFAC	TURING		Tailored in-plant scaled-up manufacturing					✓	<b>√</b>
<u>C</u>	Ingeniatrics	ONEN				Improved sensitivity and robustness analytic nebulizer and micronebulizer for speci					✓	<b>✓</b>
0	Ingeniatrics		Flow Blurring® Metal)			High throughput nebulizer for material process: drying, pulverisation, etc. Able to o					<b>√</b>	
0	Ingeniatrics	CELLI	NA Spray-dryer			User-friendly bioencapsulation portable platform to encapsulate high molecular we	• • • • • • • • • • • • • • • • • • • •					
C	Ingeniatrics Ingeniatrics		OFNAT-UNTEN DPARTICLES DEVELOPN	MENT		Brand-new spray-drying and spray-chilling equipment integrating proprietary technology emitt Customised CRO microencapsulation services for cosmetics, chemicals, consumer goods, Inc						
C	Ingeniatrics		IZATION EQUIPMENT /			Development and manufacturing of proprietary technology nebulizers, atomisers, an						
înKemia	InKemia IUCT group	GC-SI	-	VO		Substitution for green safer solvent from renewable resources in different industria					✓ /	
ÎnKemia	InKemia IUCT group	CG-Bi	o-GMO			Molecular biology: genetically modified microorganism					1	
înKemia	InKemia IUCT group	Bio-H	В			High throughput biotechnological synthesis of small molecules					/	
💪 LETI	Laboratorios LETI					Protein Purification					✓	
X LIFE LENGTH	Life Length	TAT				Telomere measurement					✓	
Lonza	Lonza Biologics Porriño					Stirred bioreactors 5.000 & 10.000 L. scale & single-use bioreactors					✓	
Lonza	Lonza Biologics Porriño					Custom manufacturing of monoclonal antibodies and recombinant proteins using m	ammalian cell culture				<b>√</b>	
Lonza	Lonza Biologics Porriño  NANOIMMUNOTECH	MITNI	DSENSING			Analytical Services for the Biotechnology Industry  Colorimetric biosensing platform based on the innovative properties of nanotechnol	lonv					
AN cancinmented				sing technology for ultra-sensitive, rap	oid and easy detection of analytes of interest (NITBIOSENSING)		•					
NAME OF TAXABLE PARTY OF TAXABLE PARTY.		Therm	ll biosensor based on visual	l detection by colour change in a supp	port where an analyte is present, produced by heat	Detection of analytes in very different kinds of areas such as human and animal diagno					<b>√</b>	
AN consimunated					nanoparticles. (NITBIOCONJUGATION)	Lateral flow. Design of biosensors. Bioconjugation. Microscopy probe. Immunogold.  Design of biosensors Target-specific drug-delivery Lateral flow tests Imaging probe	•				<b>√</b>	
	NANOIMMUNOTECH	-			fferent sizes available) (NITPARTICLES)	therapy Catalysis Optoelectronic	and more improved that element and the province in				<b>✓</b>	
AN nancimmental	NANOIMMUNOTECH				particles (different sizes available) (NITPARTICLES)	Design of biosensors Drug delivery Colorimetric probes Cellular uptake					<b>✓</b>	
AV nancimmental				ooic gold nanoparticles (NITPAR	,	Design of biosensors Target-specific drug-delivery Imaging probes for dark-field mi					<b>√</b>	
AN consimunateled	NANOIMMUNOTECH			usters (different sizes available)	,	Bioconjugation Immunocytochemistry Microscopy probe Cellular uptake Immunogol	id immunosensing Catalysis Optoelectronic				<b>√</b>	
neiker)			gold : Porttollo of gold-(	coated magnetic nanoparticles (	(different surfaces available) (NITPARTICLES)	Magnetic separation Biosensing Magnetic hyperthermia Drug delivery					√ /	
neiker)	NEIKER Tecnalia - Instituto V NEIKER Tecnalia - Instituto V					Protein purification Soil microorganism detection						
neiker)	NEIKER Tecnalia - Instituto V	•				Development of microalgae culture strategies to obtain high lipid biomass content					•	
brorusa /	NEOL BIOSOLUTIONS		DBIOTOOLS			Selection, optimization and scale-up of microorganisms for industrial applications					/	
	NEOL BIOSOLUTIONS	MICR	DBIOIL-1			Production of microbial oils from crude glycerine					✓	<b>√</b>
	NEOL BIOSOLUTIONS	MICR	DBIOIL-2			Production of microbial oil from lignocellulosic residues (wheat straw)					<b>✓</b>	✓
Aptiblic.		PleMI	v2			Molecular Dynamics software - drug discovery, analysis of action mechanisms					✓	
Aptablibac.						Reverse docking, for repositioning of existing drugs					✓	
Aptabilities.		PleMi				Molecular Dynamics solution					<b>✓</b>	
S RETERAÇões	SISTEMAS GENÓMICOS	Massi	ve sequencing applied to	o clinical diagnosis and medical	l informatics technologies	Platforms for massive sequencing studies of genomics, transcriptomics, molecular	biology, genetic diagnosis				✓	
vytrus	Vytrus Biotech		den aftilet i i i i i			Plant cell cultures technology for the development of dermocosmetic products	and the sallesting Outstand of the same of					
Biopolis	BIOPOLIS		ning of biological activiti			Screening of interesting biological activities either from comlex samples or selected strains fr						
Biopolis	BIOPOLIS BIOPOLIS		Milk Oligosaccharides up of bioprocess			Biotechnological Production of Human Milk Oligosaccharides as High-added Value A Fermentation and Downstream process from 1 L to 300 L bioreactors	ACLIVE INGREDIENTS					
Biopolis	ENTRECHEM			r ontimization of hionas oroduct	tion	Rinenerny, waste mananement						

Bioenergy, waste management

Solid State Fermentation (SSF)

Biosurfactant production

Protein purification

Enzyme immobilization

Bioactive compounds extraction and recovery from Biomass

Microbial production of tailor-made oils and oleochemicals

Plant cell cultures technology for recombinant proteins production

Biocatalysis development for the syntehsis of antimicrobial molecules

Microbial Fuel Cells (MFC). Partial anaerobic digestion of wastewater for MFC operation

Detection of diferent infectious agents in a single multiplex assay, based on microarray technology.

## **BIOFUELS**

Bioaugmentation strategies for optimization of biogas product<mark>ion</mark>

Bioactive compounds extraction and recovery from Biomass

Biocatalysis development

Protein hydrolysis

Solid State Fermentation (SSF)

Microbial Fuel Cells (MFC)

Biosurfactant production

Enzyme immobilization

MICROBIOIL-3

Multi DETECT

LO	IGO	COMPANY	TYPES OF BIOFUEL	RAW MATERIAL	GENERATION	ACTIVITY	ADDED VALUE
<b>~</b>	'ALGAENERG'	ALGAENERGY	Biomass, biodiesel, bioethanol, biogas	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	) 3rd	Laboratory production & genetic engineering	Higher yield than 1st generation: No conflict with human food, Use of non agricultural land, Grow on either wastewater, brackish water or seawater, daily harvesting
	<u> </u>	BANCO ESPAÑO <mark>l de Algas</mark>	Biomass, biodiesel, bioethanol, biogas	Crops (alcoholic, algae, <mark>aromatic, lignocellulosic, oleaginous</mark>	) 3rd	Fast growing strains, isolation of new species, selection of strain	s New biodiversity & cultivation systems, extremophiles, new techniques, connection with pilot plant units at real conditions, and R&D groups
	Biopolis	BIOPOLIS	Biodiesel, bioethanol, biogas	Other	2nd	Development of optimised microorganisms for biofuels	Process optimisation
	company company	Camelina Company España	Liquid biofuel	Other	2nd	Sustainable feedstock	Sustainable feedstock for 2nd generation liquid biofuel. Development for aviation liquid biofuel: biojetfuel
	camelina company figure camelina company	Cameli <mark>na Company España</mark>	Liquid biofuel	Other: Camelina oil	2nd	Sustainable feedstock	Sustainable feedstock for 2nd generation liquid biofuel. Biodiesel
	camelina company	Came <mark>lina Company España</mark>	Biojetfuel for the aviation industry	Other: Camelina oil	2nd	Feedstock production	Sustainability. Drop in fuels
	entrections	ENTRECHEM	Biogas	Agricultural wastes / Domestic biomass (from urban waste)	1st	Bioaugmentation strategies	Identification of key microorganisms in anaerobic digesters to implement bioaugmentation strategies and optimize performance
	Name of the last	Funda <mark>ción Parque Científico Tecnológico Aula Dei</mark>	Biodiesel	Other: no-food crop	2nd	Sustainable feedstock	Sustainable feedstock for 2nd generation liquid biofuel
	0	Ingenia <mark>trics</mark>	All	Other: fuel delivery	1st	Optimised fuel atomizatio <mark>n</mark>	Diminishes emissions - gas and solid particles, makes combustion more efficiently. Capacity to make viscous materials burn, e.g. glycerine
	0	Ingeniatrics	All	Other: emissions	1st	Treatment of NOx Emissio <mark>ns</mark>	Diminishes NOx emissions utilising urea with improved efficiency
	ÎnKemia	InKemia IU <mark>CT group</mark>	Biofuels for diesel engines	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	) 2nd	Development of new biofue <mark>ls and other biotech products</mark>	100% of biomass (oil) use, as it converts glycerine into a biofuel with improved properties compared to famers
	ÎnKemia	InKemia IUCT group	Heating	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	) 2nd	New biofuel for heating in in <mark>dustrial furnaces</mark>	100% biomass use. Substitutes fuel oils. Economically viable. Does not need preheating of the fuel oils for ignition
	înKemia	InKemia IUCT group	Synthesis and purification of biofuels either by chemical or biotechnological routes	Other: All	1st / 2nd	Process optimisation of biofue <mark>l production</mark>	One stop shop for biofuel process optimization
	LEITOT	Leitat	Biodiesel	Other: oils	1st / 2nd	Transesterification process development	Recovery of oily waste. More sustainable process
$\overline{A}$	LEITOT	Leitat	Biogas	Agricultural wastes / Livestock biomass	2nd	Pilot plant demonstration	Process optimized. Valorisation of a waste with limited valorization options. Pretreatment optimization
	LEIT	Leitat	Cogeneration/Heating	Agricultural wastes	2nd	Energy studies	Study the technical feasibility of the power source
	LEIT	Leitat	Bioethanol	Agricultural wastes	2nd	Pretreatment of raw material	Improvement of the saccharification efficiency by chemical or enzymatic pathways
	LEITOT	Leitat	Electricity	Other: Organic effluents (wastewater)	2nd	Microbial Fuel Cell. Semi-pilot scale-up	Obtaining energy from organic waste effluent. Process optimisation.
	LEITOT	Leitat	All	Other: All	1st / 2nd	LCA	Quantification of the environmental improvements and sustainability of different processes of energy production and biofuels
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Biogas	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	) 2nd	Biomass production	Technical feasibility study of the power source
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Cogeneration	Other: organic waste	2nd	Digestate Treatment	Technical feasibility study of digestate in agriculture
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Cogeneration	Other: organic waste	2nd	Nutrients removal	Increased profitability of processes through a combination of different organic sources
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Gas heating	Other: biomass	2nd	Improvement of biomass production systems	Reduced costs of intensive agricultural production systems: energy efficiency of production processes
	neiker	NEIKER Tecnalia - Instituto Vasco de Investigaci	Diesel	Crops (alcoholic, algae, aromatic, lignocellulosic, oleagino <mark>us</mark>	) 1st	Crop agronomy	Improvement of farm profitability
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Diesel	Crops (alcoholic, algae, aromatic, lignocellulosic, oleagino <mark>us</mark> )	) 2nd	Genetic transformation	Process profitability increase: mixed use algae
	neiker	NEIKER Tecnalia - Instituto Vasco de Investigaci	Diesel	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	) 1st	Exploitation and valorisation of by-products	Integrated utilisation of biomass: energy and animal feed
	neiker	NEIKER Tecnalia - Instituto Vasco de Investigaci	Diesel	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	) 2nd	Strains selection	Improving farm profitability
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Diesel	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	2nd	Biomass production	Significant yield increase in the production of biomass
	neiker)	NEIKER Tecnalia - Instituto Vasco de Investigaci	Biogas	Other: organic waste	2nd	Biomethanisation process improvement	Recycling organic wastes to generate methane processes
-	✓ NEOLBIO	NEOL BIOSOLUTIONS	Biodiesel, renewable diesel	Crops (alcoholic, algae, aromatic, lignocellulosic, oleaginous	2nd / 3rd	Development of technology	Valorisation of by-products. Non-competition with food raw materials. High yield production of microbial oils



ENTRECHEM

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NEOLBIO NEOL BIOSOLUTIONS

NEOLBIO NEOL BIOSOLUTIONS

vytrus Biotech

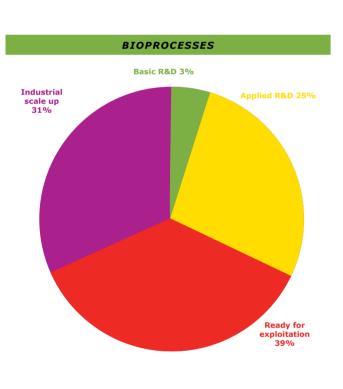
**TECHNOLOGIES** 

Basic R&D 1%



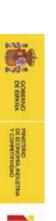


# **BIOPRODUCTS** Industrial scale up 42%



**Spanish Bioindustry Association** 

**ASEBIO**, the Spanish Bioindustry Association, encompasses over 270 firms, associations, foundations, universities, centers which carry out activities directly or indirectly related to biotechnology.





## **Spanish White Biotech Pipeline\***

### **BIOPRODUCTS**

LOGO	COMPANY	NAME	INDICATION	BASIC R&D	APPLIED R&	D READY FOR EXPLOTATION	INDUSTRIAL N SCALE-UP	AVAILABLE	TECHNOLOGY TRANSFER IN PROGRESS	PATENT
✓ ALGAENERGY	ALGAENERGY		Microalgae products with excellent properties for several applications and sectors					✓	✓	✓
✓ ALGAENERGY	ALGAENERGY	BLUE GOLD	C-Phycocyanin extract out of the microalgae Spirulina							
A Biomedal	Biomedal	•	Immunoglobulin capture and purification affinity medium					✓	✓	✓
A Biomedal	Biomedal	ProPure rProtein G Rapid Flow	Immunoglobulin capture and purification affinity medium					✓	✓	✓
A Biomedal	Biomedal	ProPure rProtein A Rapid Flow	Immunoglobulin capture and purification affinity medium					✓	<b>√</b>	
A Biomedal	Biomedal	ProPure rProtein G FastCAp	Immunoglobulin capture and purification cartridges					<b>√</b>	<b>√</b>	<b>√</b>
A Biomedal	Biomedal	ProPure rProtein A FastCAp	Immunoglobulin capture and purification cartridges						<b>√</b>	
A Biomedal	Biomedal Biomedal	rProtein G (3xC) rProtein A (4xZ)	Synthetic derivative produced by recombinant expression. Antibody purification  Synthetic derivative produced by recombinant expression. Antibody purification						√ √	✓ ✓
Biomedal  bionet	BIONET INGENIERÍA	Triuldili A (4x2)	Microalgae collection					· ·	<b>V</b>	
bionet'	BIONET INGENIERÍA		Cellulolytic and hemicellulolytic enzymes							<b>√</b>
bionet'	BIONET INGENIERÍA		Sugars							
(iii) bionet'	BIONET INGENIERÍA		DDGS (Dried Distillers Grains with Solubles)					/		
camelina company	Camelina Company España	Camelina Oil	High Omega3 and Vitamina E Content.					<b>✓</b>	<b>✓</b>	
ÎnKemia	InKemia IUCT group	CAT-Bcun - Gbspum - Ssdeod	New catalyst Purine Phosphorilase Nucleoside					/		/
înKemia	InKemia IUCT group	CAT-Apudp / Bcpym / Hmudp	New catalyst pyrimidine phosphorilase nucleoside					✓		1
ÎnKemia	InKemia IUCT group	GC-851	New solvent from renewable materials for synthesis of APIs					✓		/
ÎnKemia IUCT group	InKemia IUCT group	GC-\$78	New solvent from renewable materials for Crop protection					✓		1
Înkemia IUCT group	InKemia IUCT group	SOL-LAOC4 / GC-877 / GC-DM/	A New solvent from renewable materials for metal degreasing and for Paint and varnishes from DMA					✓	✓	✓
ÎnKemia IUCT group	InKemia IUCT group	GC-879	Solvents from renewable materials for the biodiesel sector					✓		✓
ÎnKemia ILICT group	InKemia IUCT group	BIO-TFT	Trifluorothymidine / Antiviral (Ophthalmic) / Herpes Cornea					✓	✓	<b>√</b>
ÎnKemia	InKemia IUCT group	GC-BIO-DAP / BIO-AP	2,6-diaminopurine deoxiriboside. Anticancer / 2,6-diaminopurine riboside. Antiviral. Anticancer					✓	✓	<b>✓</b>
ÎnKemia	InKemia IUCT group	GC-BIO-DF / GC-BIO-F	2-deoxy-5-fluorouridine. 5-fluorouridine. Anticancer / Colon & Pancreas / Colon & Breast					✓	✓	<b>√</b>
A cardinauctech	NANOIMMUNOTECH	NITZIPPER	Family of products ready to be easily, quickly and efficiently bioconjugated (antibodies, dyes, enzymes, micro/nanostructures, peptides, molecules, linkers, etc.)					<b>√</b>		<b>√</b>
Seprox вютесн	SEPROX BIOTECH	Hydroxytyrosol	Production of Hydroxytyrosol by chemical and enzimatic syntesis					<b>√</b>		
Teración		V32R	CRVO/RD/AMD					<b>√</b>		
✓ ALGAENERGY	AGROCODE BIOSCIENCE Algaenergy	AGRIALGAE	Extraction process development biopesticides from plant extracts and secondary metabolites of different microorganisms  High quality particultural bioestimulant 100% based on microolago parametric budgeless.					<u> </u>		<b>✓</b>
(b)	Bioibérica	Gera Trap	High quality agricultural biostimulant 100% based on microalgae enzymatic hydrolysis.  Biological Attractants							
MOINTELEX.	Bioibérica	Dacus Trap	Biological Attractants							
ALOISTINGS	Bioibérica	Armurox	Plant protection (endogenous defense mechanisms)							
6	Bioibérica	AminoAlexin	Plant protection (resistance to biotic stress)					<b>✓</b>		
ALOISESICA	Bioibérica	AminoQuelant Ca/Mg	Bioavailable Nutrition					/		
100000	Bioibérica	Terramin	Biostimulant					<b>√</b>		
JOINES.	Bioibérica	Terra Humic	Biostimulant					✓		
	Bioibérica	Inicium	Biostimulant					✓		
	Bioibérica	StressSal	Biostimulant					✓		
ajoistajes.	Bioibérica	Terra-Sorb	Biostimulant					✓		
	Bioibérica	Suzukii Trap	Biological Attractants				•	✓		
NO DELEA	Bioibérica	AminoQuelant-Cu	Bioavailable Nutrition				•	<b>✓</b>		
ALOISESIEA	Bioibérica	Flyral	Biological Attractants					<b>✓</b>		
A Biomedal	Biomedal	rProtein A Resins	Immunoglobulin capture and purification					<b>√</b>		
Af Biomedal	Biomedal Biomet incentedía	nLZ4-Gys	Cost effective ligand for antibody purification					<b>√</b>		<b>✓</b>
bionet"	BIONET INGENIERÍA Biopolis	Bio-Enz	Microalgae collection  Bioconversion of desired molecules by the use of enzymes. Either with commercially available enzymes or using enzymes designed from scratch.							
Ropolis	Fundacion MEDINA	MEDgene	Microbial Genetic Bank							
	Fundacion MEDINA	MEDiversity	Microbial Collections							
vytrus	Vytrus Biotech		Plant cell cultures for dermatological applications					-		
trietisch	AGROCODE BIOSCIENCE	Trichoderma	Development production trichoderma with sterile process					/		
(S) bronet'	BIONET INGENIERÍA		n-butanol							<b>√</b>
Biopolis	BIOPOLIS	Human Milk Oligosaccharides	Biotechnological Production of Human Milk Oligosaccharides as High-added Value Active Ingredients							<b>✓</b>
Hopols Hopols carnelina company Rente	BIOPOLIS	Enzymatic preparations	Enzymes for the agrofood, chemical and pharmaceutical industries. We offer development and manufacturing of the desired enzymatic activities, including proteases, cellulases, lipases, amylases, xylanases, phytases, hydrolases, pectinases, among others							
camelina company	Camelina Company España	Camelina germplasm	Screening and breeding program					✓	✓	
ecocelta	Ecocelta Galicia S.L.	Sistema Vermifitas	Modular system of biological treatment of pig slurry and other liquid waste. The success of the results offered is based on the combination of a filter of worms and a purification tank with macrophytes.							✓
ÎnKemia	InKemia IUCT group	B10-K3	Menadione (vitamin K3)					✓		✓
Înkemia	InKemia IUCT group	CAT-Halo1 / Halo2	Enzymatic mixture with hydrolytic activity / with lipase and protease activity					✓		
ÎnKemia	InKemia IUCT group	Bio-EPS	New exopolysaccharides use as nutraceutical and cosmetics (8 compounds)					<b>✓</b>		
Înkemia	InKemia IUCT group	BIO-CEM	New microorganisms for self healing concrete					<b>/</b>		
Înkemia IUCT group	InKemia IUCT group	CAT-Halolip / Haloprot	New halolipase / New haloprotease					✓		
LEITOT LEITOT	Leitat		Protein hydrolysates  Production of heits for insect control (protein hydrolestes as insect attractors). Best fight							
ecocelta	Leitat	Ácidos fúlvisos	Production of baits for insect control (protein hydrolsates as insect attractants). Pest fight.							
The state of the s	Ecocelta Galicia S.L.	Ácidos fúlvicos	Organic amendment with stimulating power of the roots of plants. They possess the ability to chelate other nutrients , increasing its bioavailability by the plant.		l			<b>✓</b>		
			BIOPROCESSES							

LOGO	COMPANY	NAME	INDICATION	BASIC R&D	APPLIED R&D	READY FOR EXPLOTATION	INDUSTRIAL Scale-up	AVAILABLE	TECHNOLOGY TRANSFER IN PROGRESS	PATENT
✓ ALGAENERGY	ALGAENERGY		Biomass integral valorisation process					✓	✓	✓
. В юснемии	BIOCHEMIZE	PB-est	Enzymatic and microbial platform for esterification of organic compounds							
. В юснемии	BIOCHEMIZE	PB-oxi	Enzymatic and microbial platform for oxidation of aromatic methylenes							
. В юснемих	BIOCHEMIZE	PB-met	Enzymatic and microbial platform for methylation of aromatic compounds							
. В юснемии	BIOCHEMIZE	PB-rac	Enzymatic and microbial platform for separation of racemic compounds					<b>√</b>	<i>J</i>	
.Вюснемии водините	BIOCHEMIZE	PB-ald	Enzymatic and microbial platform for aldolic condensations							
Віоснеміхе	BIOCHEMIZE Biomedal	PB-red HISTAG-2nd-PHASE	Enzymatic and microbial platform for reduction of oxygen functional groups  Protein congression and purification of his tagged proteins in appropriate page systems.							
& Biomedal	Biomedal	LYTAG-2nd-PHASE	Protein separation and purification of his-tagged proteins in aqueous two phase systems  Protein separation and purification							
Biomedal bionaturisgroup	Bionaturis	FLYLIFE	Baculovirus-based expression system at industrial scale (MVB, WVS, upstream, downstream)							
bionaturisgroup	Bionaturis	FLYPIDS	Recombinant expression of second generation vaccines (VLPs, chimeric, subunits)						· · · · · · · · · · · · · · · · · · ·	
Hopolis	BIOPOLIS	Bio-Bph	Production of biopharmaceuticals, key organic compounds and green chemicals							
eritochera	ENTRECHEM	Bioaugmentation for increased production of biogas	Bioenergy, waste management					· · · · · · · · · · · · · · · · · · ·		
ertection	Fundacion MEDINA	bloadymentation for increased production of blogas	Isolation of new natural products from microbial fermentations						· ·	
	Fundacion MEDINA		Fermentation of new fungal and bacterial strains with biotechnological applications							
înKemia	InKemia IUCT group	Bio-PROC								
ÎnKemia			Substitution of chemical processes for bioprocesses  Proposition inelation characterization and performance of new micrographics in industrial histophysics.							
IUCTgroup	InKemia IUCT group	Bio-SRC	Prospection, isolation, characterization and performance of new microorganisms in industrial biotechnology					· · · · · · · · · · · · · · · · · · ·		
LEITET	Laboratorios LETI	Budgeting Asianta will protein (000)	Production of protein extracts / allergens					<b>✓</b>		<b>√</b>
LEITET	Leitat	Production of single cell protein (SCP)	Development of the process fo the production of single cell protein (SCP) from food industry waste and effluents							
managing hadrostopes	Leitat	Microbial Desalinition Cells	Material development and validation							
✓ NEOLBIO	NEOL BIOSOLUTIONS	TRIBIOPLAST	Biopolymers (medium and long chain poly-hydroxy-alkanoates)							
✓ NEOLBIO	NEOL BIOSOLUTIONS	MICROBIOL	Tailor-made microbial oils and oleochemicals from residues							
raxis	PRAXIS	Proteins & Peptides	Micro-nano-formulation, aseptic filling and freeze-drying					<b>✓</b>	<b>√</b>	
Jones Les	Bioibérica	_	Biogas production plan project from fat							
( Bio Raw	Bioraw	Ps	Aseptic lyophilisation and filling of APIs							
( Bio ₹aw	Bioraw		Bacterial and fungal fermentation and DSP							
( Bio ₹aw	Bioraw		Biotechnological production of APIs							
( Bio?aw	Bioraw		Biotechnological production of steroids							
(I)	Institut Quimic de Sarrià (IQS)	PROCEDIMIENTO PARA LA PRODUCCIÓN DE DHA por microalgas	Polyunsaturated fatty acids through a bioprocess with heterotrophic microalgae							<b>✓</b>
LEITET	Leitat	Fermentation process development	Biosurfactant production processes from commercial and renewable feedstock							
LEITET	Leitat		Enzymatic and physic-chemical protein hydrolisation processes. Collagen, keratine hydrolisates and vegetable protein hydrolisates for fertilizers, cosmetics and feed							
LEITET	Leitat	Strain improvement	Strains improvement without genetic modification (random mutagenesis and/or induction of natural transfer). Food and environmental application							
LEITET	Leitat		Biogas production from waste and effluents							
LEITET	Leitat	Microbial Fuel Cells	Development of Microbial Fuel Cells technology for electricity generation							
LEITET	Leitat	Novel strain isolation	Isolation of new producing strains and consortia for bioproduct obtaining. (e.g. biosurfactants, biopolymers, enzymes, etc.)							
LEITET	Leitat	Biocatalysis	Enzymatic and microbiological synthesis of antimicrobials							
LEITET	Leitat		Production of soil improvers based on peptides and amino acides. Fertilizers							
LEITET	Leitat		Production of crop agents based on antimicrobial peptides. Fertilizers							
LEITET	Leitat		Obteining protein hydrolysates							
LEITET	Leitat	Biocatalysis	Enzymatic synthesis of prebiotic ingre <mark>dients</mark>							
LEITET	Leitat		Substitution of chemical processes by bioprocesses							
LEITET	Leitat		Enzymatic improvement of fats and fat valorisation							
LEITET	Leitat		Bioprocess for textile processing							
neiker)	NEIKER Tecnalia - Instituto Vasco de Investigad		Production of Omega-3-Rich Oil from microalgae					✓		
neiker)	NEIKER Tecnalia - Instituto Vasco de Investigad		Production of Recombinant Proteins					<b>✓</b>		
neiker)	NEIKER Tecnalia - Instituto Vasco de Investigad		Production of carotenoids from microalgae							<b>✓</b>
Promotor	PROMEGA BIOTECH IBÉRICA	Manufacturing and Custom Capabilities	Our facilities meet or exceed quality standard requirements to ensure the on-time delivery of high-quality custom, bulk or specially designed products							
vytrus	Vytrus Biotech		Development of plant cell cultures for dermatologic pathologies							
vytrus	Vytrus Biotech		Development of plant cell cultures as new cosmetic actives ingredients							
vytrus	Vytrus Biotech		Recombinant proteins production through plant cell cultures platform							
Fae	3P BIOPHARMACEUTICALS	CMO GMP certified	Analytics development and validation platform (API, IMP, IPC) for Biosimilars					✓		
Har.	3P BIOPHARMACEUTICALS	CMO GMP certified	Analytics development and validation platform (API, IMP, IPC) for New biological entities					✓		
Hap	3P BIOPHARMACEUTICALS	CMO GMP certified	Bioprocess Development/Optimisation Platform (USP/DSP)					✓		
H <sub>ae</sub>	3P BIOPHARMACEUTICALS	CMO GMP certified	Freedom-to-operate platform in Bacteria, yeast and mammalian					✓		
(iii) bionet'	BIONET INGENIERÍA		Process Development/Optimization (USP and DSP)					✓		
(iii) bionet'	BIONET INGENIERÍA		Scale up and GMP facilities design					✓		
Biopolis	BIOPOLIS	Bio-BPL	Process development for biopolymers production					✓		
Bopols	BIOPOLIS	Bio-Ct1	Bioprocesses / biocatalysis					✓		
Biopolis	BIOPOLIS	Bio-Cl	Custom cloning and expression of recombinant protein					✓		
Ropolis	BIOPOLIS	Bio-Snt	Biosynthesis of chemical compounds					✓		
( Bio ₹aw	Bioraw		Development of fermentation and downstream processes at pilot scale and the subsequent industrial scale-up					✓		
( Bio ₹aw	Bioraw		Process development & optimization (USP & DSP)					✓		
BIOSEARCH	BIOSEARCH LIFE		Manufacture and Purification of plant extracts					/		
LEITET	Leitat		Biotechnological cotton process					✓		
LEITET	Leitat	Monoclonal antibody	Generation, humanization, production, purification					<b>√</b>		
Lonza	Lonza Biologics Porriño		Analytical services and stability studies of DS and DP					<b>√</b>		
Biopolis	BIOPOLIS	Bio-Rp	Production and purification of recombinant proteins					✓		
Biopolis	BIOPOLIS	Bio-PHA	Process Development for PHA production					✓		

Around 630 companies research and develop products in the Spanish biotechnology sector.