euroespes health

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EuroEspes Health Medical Bulletin

International Center of Neuroscience
and Genomic Medicine

Contents

May Editorial
Conditioned Normality

We began to get a glimpse of a faint light at the end of the tunnel. There is joy in seeing people celebrate the end of the oppressive State of Alarm; and it is surprising that some "experts" are still stunned when, after locking the chickens and goats in the farmyard for a long time, you open the gate and they all go a little crazy. After the seclusion, normality can make you go crazy with joy, fear or anger, even if you are not able to perceive the chains of the new normality, based on the vices of the former one.

Euripides said in his *Hecuba* (425 B.C) that "no man on earth is truly free. All are slaves of money or necessity. Public opinion or fear of persecution force each one, against his conscience, to conform", an assertion that is applicable at any time and foreshadows the new normality. People who are accustomed to the abnormal appear to have already adapted to this restrictive anomaly of conditioned normality. **W. Somerset Maugham** wrote in *The Summing Up* (1938): "The normal is what you find but rarely. The normal is an ideal. It is a picture that one fabricates of the average characteristics of men, and to find them all in a single man is hardly to be expected"; and the great **Ralph Waldo Emerson**, the leader of the transcendentalism movement which gave rise to the New Thought of the mid-nineteenth century, ironized: "Conformity is the ape of harmony."

The main objective of the pandemic that afflicts us is to make us all equal, in the face of threat or disease; something that is used by the factual powers to subdue the population to their capricious impulses in the name of health, which conceals their autocratic appetite very well. Therefore, it doesn't matter what vaccine we are referring to; when problems arise, they blend; if there is no consensus among the official scholars, the parishioners are asked to choose, signing a consent beforehand, in case something happens to them; let's these scholars not to be spread with lawsuit.

"Conformity, humility, acceptance… with these coins we are to pay our fares to paradise," said **Robert Lindner** in 1956. Now with vaccination and a health passport to move with controlled freedom and go on vacation where the authority allows you, the entire herd bears the mark of the farm to which it belongs. If you follow the instructions you will be happy; if you disagree with them, prepare yourself to be chased and slaughtered. In *The Lonely Crowd*, published in 1950, **David Riesman** said that "men are created different; they lose their social freedom and their individual autonomy in seeking to become like each other". A decade later, **Martin Luther King** explained to his followers that "success, recognition and conformity are the bywords of the modern world where everyone seems to crave the anesthetizing security of being identified with the majority." This pandemic has fueled unique thinking, with no room for the dissenter. We oscillate between dilettante extremes: radical interventionism and apocryphal denialism; both of which are bad, negative, sloppy, biased, sectarian, and also ignorant. The believing masses are in the middle, agreeing and adapting to an anomalous normality that is appreciated as if it were undeserved. The mass advances, in strict order of obedience, on pilgrimage, to the vaccination sanctuaries, where the priestesses or high priests of the dominant belief distribute hosts and extreme unction, without specifying in which row the devotees must be placed, except by age and "animal branding". Nothing new. Already on August 23, 1955, **Thomas P. Ronan** pointed out in *The New York Times* that "Queuemania is an ailment that afflicts people with a compulsive urge to line up behind someone or something, even a lamp-post".

It is not about being unruly; It is not about being disobedient; It is not about being uncivil. It is about not giving up the most elementary things that every human being deserves: freedom, legal capacity, and the right to demand an efficient service from those in charge of directing and governing, truthful information, credible experts, transparent decision-making, clarity of explanations, and that hunches, occurrences or dispatch strategies using an electoral stamp, not be employed to toy with peoples' health.

Conformity is a fairly classic and accommodating custom of the human condition. In 1971, **Charles Dudley Warner** used sarcasm, in *My Summer in a Garden*, saying "we are half ruined by conformity, but we should be wholly ruined without it." This is the version of the poor in spirit. There are other versions. On September 25, 1961, two years before his death in Dallas, President **John F. Kennedy** declared at the United Nations General Assembly that "conformity is the jailer of freedom and the enemy of growth." In the current situation, with the general neglect that affects public health and especially chronic patients, conformity is atypical of a developed country that has one of the most expensive health systems in the world, at the expense of the public funds.

We all have to learn from this pandemic. If the great social anomaly that has led people to seclusion in their homes, the closure of their businesses, the sacrifice of furloughs and unemployment, and many other calamities, has been to ensure that the health model does not give up, does not break more than what is already there, or that health personnel are no longer exploited, then it cannot be claimed that everything changes and that the "mausoleum of health" remains untouchable.

Media intoxication and verbal lust deserve separate treatment, which transcends borders. Mortality rates do not help to raise a country or to comfort those families who face a horizon of misery. The disease cannot be treated with the same morbid sensationalism as the conjugal tragedies of those who sell their privacy without the slightest blush. **Ali Ibn-Abi-Talib** said in his *Sentences* of the Middle Ages that "the tongue of the wise man is

behind his heart." **Benjamin Franklin** refined it in the pages of the Poor Richard's Almanack, a decade before the American Civil War, with a hieratical phrase: "The heart of the fool is in his mouth, but the mouth of a wise man is in his heart."

In this pandemic chloasma, where everyone has an opinion, where a few rule with a margin of impunity never imagined, where many take advantage of the weakness of others, and where perhaps just a few know what they are saying, it is actually fine to be advised by someone who, because of his way of thinking seems to be born in Galicia, despite being a native of Indiana and Secretary of State with Presidents William McKinley and Theodore Roosevelt between September 1898 and July 1905. **John Milton Hay** recommended: "Try not to beat back the current, yet be not drowned in its waters; speak with the speech of the world, think with the thoughts of a few".

Ramón Cacabelos
Professor of Genomic Medicine

Campaign for the Prevention of Prevalent Diseases

Given the situation of institutional abandonment in which many patients with chronic diseases and their families find themselves in, the International Center of Neuroscience and Genomic Medicine has launched a Plan for the Prevention of Prevalent Diseases, which are the ones that most affect the population. This plan has two objectives: (i) to offer diagnostic and therapeutic support to those with chronic diseases who require medical help and institutional follow-up; and (ii) to establish preventive protocols for family members and the population at risk of suffering from diseases of the nervous system, cancer, cardiovascular diseases, and cerebrovascular disorders. In both circumstances, patients and their families have both face-to-face assistance and medical attention through telematic systems adapted to the needs of patients, their disability, and financial resources.

New Genomic Biomarker for Alzheimer's disease

Dr. Juan Carlos Carril, Head of the Genomics Department of the International Center of Neuroscience and Genomic Medicine, announces the imminent incorporation of a new polygenic biomarker for the predictive identification and early diagnosis of Alzheimer's disease. This new genomic biomarker incorporates the 100 genes with the greatest pathogenic impact in Alzheimer's disease. This disease, which is the leading cause of degenerative mental disability, has a significant genetic and familial component, with over 600 potentially affected genes. Not all genes have the same pathogenic influence. The genetic factor with the highest risk is the presence of allele 4 of the *APOE* gene (apolipoprotein E), which affects 30-40% of Alzheimer's patients. People with the APOE-4/4 genotype have a nearly 100% chance of developing Alzheimer's disease; their brain starts becoming dysfunctional early in life when the maturation of the nervous system ends. The identification of genetic risk today enables the implementation of plans that prevent or delay the programmed death of neurons and the premature manifestations of dementia.

Nutraceutical Biotechnology

Mr. Jaime Pombo, General Director of the EuroEspes Group, announces the launch of four nutraceutical products, developed by scientists from the Department of Health Biotechnology, led by Dr. Iván Carrera, into the food industry market. These products are the result of an important multidisciplinary research project co-financed by EuroEspes and the CDTI under the title of NutriCoa. The objectives of this project were: (i) to identify cocoa bio-derivatives for incorporation into chocolate preparations in order to provide new nutritional properties, with health benefits, to the food industry sector dedicated to the commercialization of chocolate and cocoa derivatives; (ii) characterization of bio-derivatives with nutritional contribution for special groups, such as children, the elderly, and pregnant women; and (iii) development of hybrid compounds with cocoa and other ingredients with nutraceutical properties. The four nutraceutical products obtained meet the criteria for superfoods, anti-aging, energizing and anti-degenerative nutrient-rich bioproducts.

Covid-19 News
Informative Evolution

In previous Bulletins, we had already discussed the disastrous impact of the COVID-19 pandemic on other areas of science, such as laboratory closures, increased unemployment in the research sector, and budgets diverted from traditional projects to coronavirus-related projects, as well as the chameleonic attitude of some groups who, despite not belonging to the sector, became virologists in order not to lose economic bellows. In this context, the fall in the number of scientific publications in multiple disciplines throughout 2020 is undeniable, with the dramatic increase in COVID-19 work over the last year, of varying value and quality.

In 2020, 91,000 studies on COVID-19 were published, and 60,000 papers have already been published in 2021. As an example, since 2000, 2,800,000 cancer studies have been published; 228,000 in 2019, 250,000 in 2020, and 113,000 in the first 5 months of 2021. Cancer is the world's second leading cause of death, accounting for an estimated average of 10 million deaths per year. About 3.54 million people have died from COVID-19 to date.

As is normal in science, not all publications on COVID-19 are homogeneous or coincident; there is a host of contradictory data and, of course, there are dissenting voices, which have not received the same degree of media attention. There is a general clamor in the scientific world against the media bias of the information, focused on government or hidden messages, and not in scientific data. An important sector of science believes that this information bias causes confusion, uncertainty, and doubts, which are harmful to people's health because they are unable to manage their health conditions effectively in the face of the pandemic.

Anti-COVID-19 Pharmacogenetics

Both COVID-19-related deaths and the good or bad responses to drugs once infected, are related to the genetic profiles of those infected people, concomitant diseases, and the type of medications they receive. Since last year, 60 scientific papers on the pharmacogenetics of COVID-19 have been published, and all of the data point to the importance of the genome in the fight against infection and drug response. Anticipating the most advanced research groups in the world by almost a year, a group of researchers from the EuroEspes Medical Center, led by Dr. Ramón Cacabelos and Dr. Juan Carlos Carril, developed the COVID-19-GenoPredictor as a predictive instrument for risk of severe pulmonary involvement and consequent hospitalization in coronavirus-infected patients, as well as a pharmacogenetic predictor to personalize treatment for hospitalized individuals and outpatients. The **COVID-19-Genopredictor** identifies the risk of infection and lung damage in the uninfected, and is the only clinical tool available to personalize drug treatment in those patients who require medication to fight infection.

The COVID-19-GenoPredictor facilitates genotyping for the *ACE2* and *TMPRSS2* genes which are responsible for lung vulnerability to coronavirus infection, and a set of genes responsible for the immune response and the genotype-phenotypes of metabolic genes responsible of the safety and efficacy of medications that a patient may receive for the treatment of COVID-19

References

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Ragia G, Manolopoulos VG. Inhibition of SARS-CoV-2 entry through the ACE2/TMPRSS2 pathway: a promising approach for uncovering early COVID-19 drug therapies. Eur J Clin Pharmacol. 2020 Dec;76(12):1623-1630. doi: 10.1007/s00228-020-02963-4. Epub 2020 Jul 21. PMID: 32696234; PMCID: PMC7372205.

How to prevent adverse reactions to vaccines

People are currently concerned about both COVID-19 and COVID-19 vaccines. The information is confusing and requires professional clarification and analysis (see previous Bulletins). All drugs and vaccines cause side effects which vary in severity, depending on the pharmacogenetic profile of each patient. None of the vaccines currently available are safe (see Side Effects of COVID-19 Vaccines). Knowing the most common side effects of each vaccine, doctors should advise their patients which type of vaccine is most suitable for them, especially those patients with chronic illnesses, vascular accidents, or allergic reactions. From a professional point of view, the only way to predict (and avoid) the risk of adverse effects is obtaining a global pharmacogenetic profile (EuroEspes Smart Pharmacogenetic Card) and a selective pharmacogenetic profile (COVID-19-Genopredictor). People who take drugs on a regular basis and must be vaccinated are candidates for obtaining a global pharmacogenetic profile; those who lack a relevant pathological history or do not consume drugs would benefit from having a selective pharmacogenetic profile, which would allow them to predict risks and choose the best immunogenic option (type of vaccine).

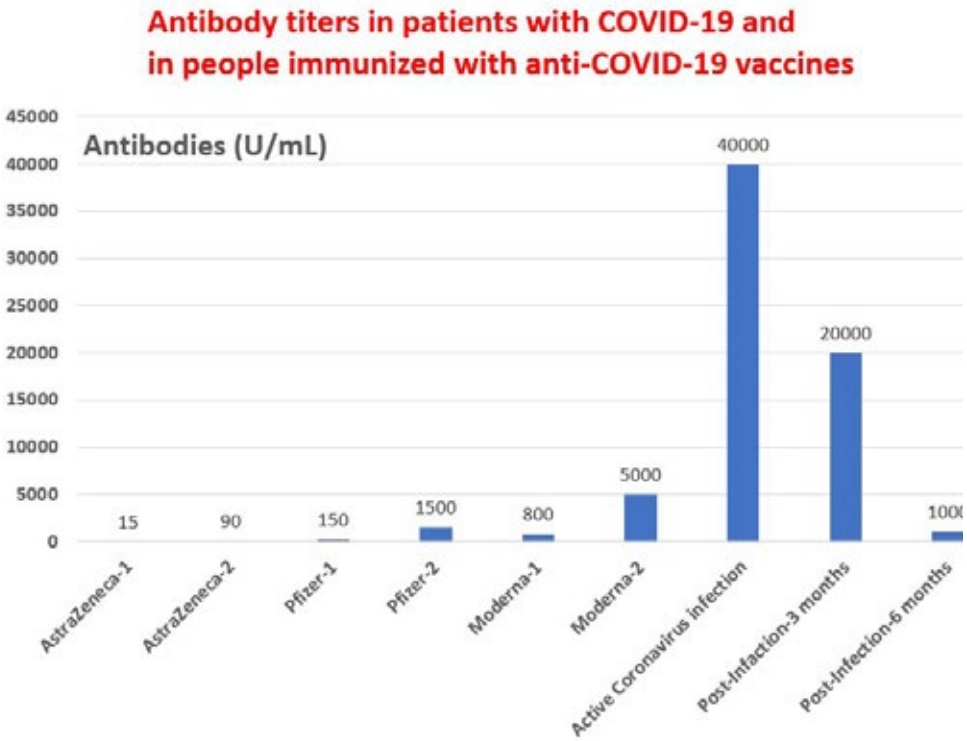
How to know if we are immunized

Simply getting vaccinated is not enough. Vaccination does not guarantee immunity. Depending on age, gender, drug use, menstrual cycle, and associated pathologies, 25-50% of people do not respond to any vaccine. The antibody response varies significantly from vaccine to vaccine and increases three to four times after the second dose with all vaccines; however, none produces an antibody titer comparable to active infection.

The only way to know whether the vaccine has been effective or not is to analyze the antibody titer. As an example, an infected patient in the active phase shows an antibody level of 20,000 to 80,000 U/mL. No vaccine generates this level of antibodies. At 3 months, the level of antibodies is halved, and 6 months after infection, in more than 50% of patients, the antibodies begin to disappear; the patient can be reinfected if in contact with the virus.

According to the data currently available, it is estimated that people with an antibody level less than 1000 U/mL, one month after the second dose of the vaccine or 2 months after the single-dose vaccine, are not correctly immunized and might be re-infected.

If this is confirmed in millions of cases, the health passport (for vaccinated people), without a 24-48 hour PCR, is a high-risk fallacy.



Side Effects of COVID-19 Vaccines

In response to our patients' constant requests for information, Lola Corzo, Director of the Department of Medical Biochemistry and the Clinical Analysis Laboratory at EuroEspes Medical Center, conducted an extensive study of the side effects of the anti-COVID-19 vaccines on the market. The results of this study is shown in the excellent summary below. This study is also available to the international medical community through a publication in the prestigious journal ***Expert Review of Clinical Pharmacology***, in which Lola Corzo is a co-author.

COVID VACCINE SIDE EFFECTS

WHO-APPROVED COVID VACCINES

VACCINE NAME	PHARMACEUTICAL	TYPE	COUNTRY
COMIRNATY (BNT162b2)	**Pfizer/BioNTech**	**mRNA Vaccine (nucleoside modified)**	**EEUU**

SYSTEM	FREQUENCY	SIDE EFFECTS
Blood and lymphatic system disorders	*Uncommon*	Lymphadenopathy
Gastrointestinal disorders	*Uncommon*	Vomiting
	Very common	Nausea
	Common	Diarrhea
	Rare (cause-effect relationship not proven)	Appendicitis
Immune system disorders	*Not known*	Anaphylaxis
		Hypersensitivity reactions
		Severe allergic reactions
Musculoskeletal and connective tissue disorders	*Very common*	Myalgia
		Arthralgia
	Not known	Pain in extremity (arm)
Nervous system disorders	*Very common*	Headache
	Rare (cause-effect relationship not proven)	Bell's palsy (facial paralysis)
General disorders and administration site conditions	*Very common*	Injection site pain
		Injection site swelling
		injection site redness
		Fatigue
	Common	Chills
		Malaise
		Fever

mRNA-1273	Moderna	mRNA Vaccine (nucleoside modified)	EEUU

SYSTEM	FREQUENCY	SIDE EFFECTS
Blood and lymphatic system disorders	*Very common*	Lymphadenopathy
Gastrointestinal disorders	*Very common*	Vomiting
Immune system disorders	*Not known*	Anaphylaxis
		Severe allergic reactions
Musculoskeletal and connective tissue disorders	*Very common*	Myalgia
		Arthralgia
Nervous system disorders	*Very common*	Headache
	Very rare (cause-effect relationship not proven)	Bell's palsy (facial paralysis)

General disorders and administration site conditions	*Very common*	Injection site pain
		Injection site swelling
		Injection site erythema
		Fatigue
		Fever
		Chills

Vaxzevria	**AstraZeneca**	**Adenovirus viral vector**	**Oxford, UK**
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Blood and lymphatic system disorders	*Common*	Thrombocytopenia	
	Uncommon	Lymphadenopathy	
Gastrointestinal disorders	*Very common*	Nausea	
	Common	Vomiting	
		Diarrhea	
	Very rare	Abdominal pain	
Respiratory disorders	*Very rare*	Chest pain	
		Shortness of breath	
Immune system disorders	*Not known*	Anaphylaxis	
		Hypersensitivity	
Metabolism and nutrition disorders	*Uncommon*	Decreased appetite	
Musculoskeletal and connective tissue disorders	*Very common*	Myalgia	
		Arthralgia	
	Very rare	Leg swelling	
Nervous system disorders	*Very common*	Headache	
	Uncommon	Dizziness	
		Somnolence	
Skin and subcutaneous tissue disorders	*Uncommon*	Hyperhidrosis	
		Pruritus	
		Rash	
Vascular disorders	*Very rare*	Thrombosis in combination with thrombocytopenia	
		Cerebral venous sinus thrombosis	
		Splanchnic vein thrombosis	
		Arterial thrombosis	
General disorders and administration site conditions	*Very common*	Injection site tenderness	
		Injection site pain	
		Injection site warmth	
		Injection site pruritus	
		Injection site bruisinga	
		Fatigue	
		Malaise	
		Feverishness	
		Chills	
	Common	Injection site swelling	
		Injection site erythema	
		Fever	

JNJ-78436735	Janssen; Johnson & Johnson	Adenovirus viral vector	EEUU
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Blood and lymphatic system disorders	*Very rare*	Thrombocytopenia in combination with thrombosis	
Gastrointestinal disorders	*Very common*	Nausea	
Immune system disorders	*Not known*	Anaphylaxis	
		Hypersensitivity	
Musculoskeletal and connective tissue disorders	*Very common*	Myalgia	
	Very rare	Pain in extremity (arm)	
Nervous system disorders	*Very common*	Headache	
Skin and subcutaneous tissue disorders	*Rare*	Urticaria	
Vascular disorders	*Very rare*	Thrombosis in combination with thrombocytopenia	
		Cerebral venous sinuses thrombosis	
		Portal vein thrombosis	
		Lower extremity veins thrombosis	
		Pulmonary artery thrombosis	
General disorders and administration site conditions	*Very common*	Injection site pain	
		Injection site swelling	
		Injection site erythema	
		Fatigue	
	Common	Fever	
	Very rare	Weakness	
		Seizures	
		Tinnitus	

BBIBP-CorV	SinoPharm; Beijing Institute of biological products	Inactivated virus	China
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Gastrointestinal disorders	*Very common*	Diarrhea	
	Uncommon	Nausea	
		Vomiting	
Musculoskeletal and connective tissue disorders	*Uncommon*	Muscle pain	
		Joint pain	
		Muscle cramps	
Nervous system disorders	*Very common*	Headache	
	Uncommon	Drowsiness	
		Dizziness	
		Lethargy	
	Very rare	Acute disseminated encephalomyelitis	
Skin and subcutaneous tissue disorders	*Rare*	Allergic dermatitis	
Vascular disorders	*Very rare*	Thrombosis	
General disorders and administration site conditions	*Very common*	Injection site pain	
		Injection site swelling	
		Injection site redness	
		Injection site itching	
		Injection site hardering	
		Fatigue	
		Fever	
		Itching at non-injection-sites	
	Uncommon	Allergies	

COVISHIELD	AstraZeneca / Serum Institute of India Pvt. Ltd	Adenovirus viral vector	India
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Blood and lymphatic system disorders	*Uncommon*	Lymphadenopathy	
Gastrointestinal disorders	*Very common*	Nausea	
	Common	Vomiting	
	Uncommon	Abdominal pain	
		Decreased appetite	
Musculoskeletal and connective tissue disorders	*Very common*	Myalgia	
		Arthralgia	
Respiratory disorders	*Common*	Flu-like symptoms	
Nervous system disorders	*Very common*	Headache	
	Uncommon	Dizziness	
Skin and subcutaneous tissue disorders	*Uncommon*	Excessive sweating, itchy skin or rash	
General disorders and administration site conditions	*Very common*	Feeling unwell	
		Tenderness	
		Pain	
		Warmth	
		Injection site redness	
		Injection site itching	
		Injection site swelling	
		Injection site bruising	
		Fatigue	
		Chills or feeling feverish	
	Common	Injection site lump	
		Fever	

WHO-APPROVAL IN PROCESS

VACCINE NAME	PHARMACEUTICAL	TYPE	COUNTRY
Gam-COVID-Wak, Sputnik V	**Gamaleya Research Institute**	**Adenovirus viral vector**	**Russia**
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Blood and lymphatic system disorders	*Uncommon*	Lymphadenopathy	
Gastrointestinal disorders	*Common*	Nausea	
		Vomiting	
		Dyspepsia	
		Decreased appetite	
Musculoskeletal and connective tissue disorders	*Very common*	Myalgia	
		Arthralgia	
		Weakness	
Respiratory disorders	*Very common*	Flu-like symptoms	
	Common	Oropharynch pain	
		Nasal congestion	
		Sore throat	
		Rhinorrhea	
Nervous system disorders	*Very common*	Headache	
		Asthenia	

General disorders and administration site conditions	*Very common*	Injection site pain
	Common	Dizziness
		Fainting
		Injection site hyperemia
		Injection site swelling
		Chills
		Fever
		General discomfort
	Uncommon	Allergic reactions

CoronaVac / Vero Cell	**Sinovac Life Sciences**	**Inactivated virus**	**Beijing, China**
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Blood disorders	*Rare*	Nosebleeds	
Gastrointestinal disorders	*Common*	Diarrhea	
		Nausea	
		Abdominal pain	
		Decreased appetite	
	Uncommon	Vomiting	
	Rare	Abdominal distension	
		Constipation	
Immune system disorders	*Uncommon*	Hypersensitivity	
Musculoskeletal and connective tissue disorders	*Common*	Myalgia	
		Arthralgia	
	Rare	Muscle spasms	
Respiratory disorders	*Common*	Cough	
		Rhinorrhea	
	Rare	Hyposmia	
		Sore throat	
		Hiccup	
Nervous system disorders	*Very common*	Headache	
	Uncommon	Drowsiness	
		Dizziness	
		Tremor	
Ocular disorders	Rare	Ocular congestion	
		Conjunctival congestion	
Skin and subcutaneous tissue disorders	*Uncommon*	Abnormal skin and mucosa	
Vascular disorders	*Uncommon*	Edema	
	Rare	Eyelids edema	
General disorders and administration site conditions	*Very common*	Injection site pain	
	Common	Injection site swelling	
		Injection site pruritus	
		Injection site erythema	
		Injection site induration	
		Fatigue	
		Pruritus	
		Chills	

Uncommon	Injection site burn
	Fever
	Flushing
Rare	Hot flashes

NVX-CoV2373	Novavax	Protein-based	EEUU
SYSTEM	**FREQUENCY**	**SIDE EFFECTS**	
Gastrointestinal disorders	*Common*	Nausea	
Musculoskeletal and connective tissue disorders	*Very common*	Arthralgia	
		Myalgia	
Nervous system disorders	*Very common*	Headache	
General disorders and administration site conditions	*Very common*	Injection site pain	
		Injection site tenderness	
		Fatigue	
		Malaise	
	Common	Injection site swelling	
		Injection site erythema	
		Injection site redness	
		Injection site induration	
	Uncommon	Fever	

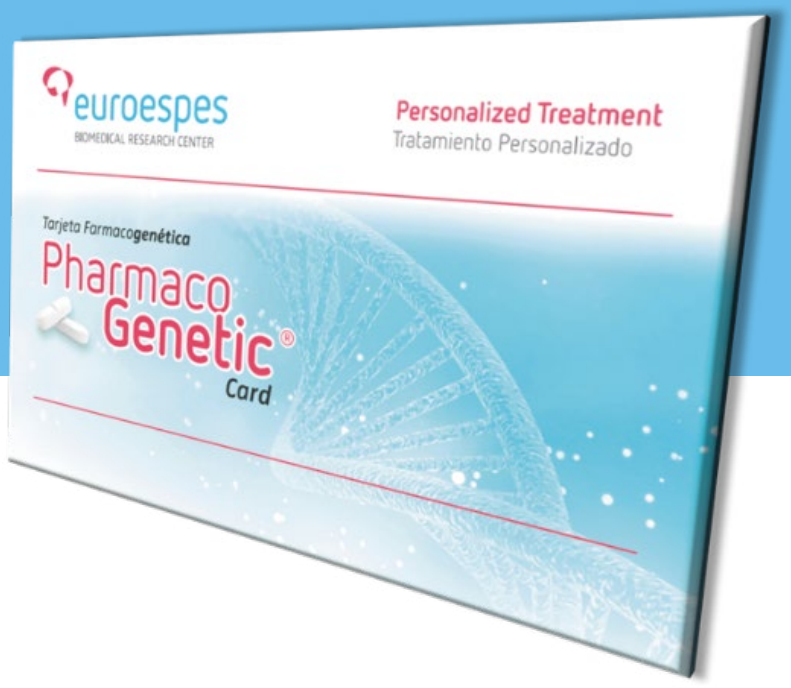
Promotional Section

Alzheimer's Prevention Plan (APP) Home and Face-to-face

The APP identifies populations at risk of Alzheimer's disease (AD) and discriminates against other memory disorders and other forms of dementia. As the initial component of the APP is the identification of the genetic risk, in order to avoid unnecessary costs and discomfort due to the displacement of people, we have established a dual APP: (i) Home APP to perform genetic tests on a saliva sample that the interested person sends to the EuroEspes Medical Center with no need to travel; and (ii) face-to-face APP for those who wish to perform a complete diagnostic protocol, including genetic tests, at our Medical Center. Those people whose home APPA detects an obvious risk can later join the face-to-face APP to complete the diagnostic set and enter the personalized prevention program through pharmacogenetic intervention.

Parkinson's Prevention Plan (PPP) Home and Face-to-face

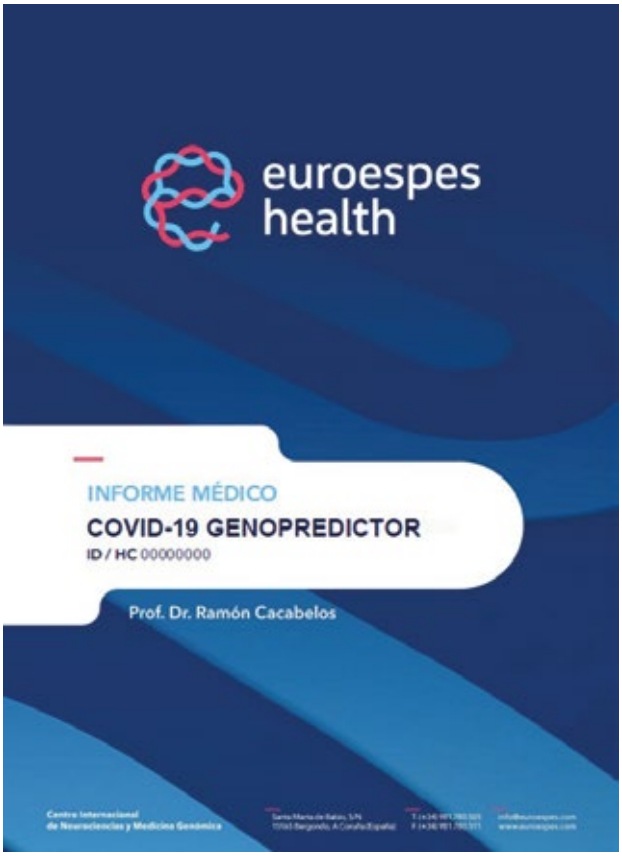
The PPP identifies the population at risk of suffering from Parkinson's disease, differentiating familial Parkinson's disease and other forms of parkinsonism (vascular, toxic or traumatic). The PPP also includes (i) a home PPP for all those asymptomatic people with a family history of Parkinson's disease or who detect incipient symptoms of tremor, rigidity or bradykinesia; and (ii) a PPP in person at the EuroEspes Medical Center where they would carry out the complete diagnostic protocol, including genomic screening. Patients in the home regimen who show genetic or environmental risk for Parkinson's disease would take face-to-face PPP to complete the diagnostic set and start the personalized prophylactic plan according to their pharmacogenetic profile.



Smart Pharmacogenetic Card PGx-60/4000

The most advanced bioinformatics product in the world with its personalized pharmacogenetic profile:

- to know the medicines you can take and which you should not take
- so that your doctor knows which drugs to prescribe and which drugs harm you
- to avoid toxicity and side effects when you have to take medication for any health problem
- to avoid life-threatening drug interactions if you have to take several medications simultaneously for long periods of time
- to avoid unnecessary expenses on products that are not useful to you
- to preserve your health with the appropriate medication for your genomic profile
- for the health of their children, who share 50% of their genome
- for life, because your genome does not change



Covid-19 GenoPredictor

The COVID-19 GenoPredictor is the only genetic test in the world that allows predicting vulnerability to SARS-CoV-2 infection with potential lung damage, immunological status and immune response capacity to coronavirus infection, and pharmacogenetic profile that allows us to personalize the pharmacological treatment appropriate to the genome of each person in case of need for treatment.

Carrying out this genomic test is recommended for people at high risk (heart disease, lung disease, hypertension, diabetes, stroke, cancer, immunosuppressed), people exposed by the nature of their work (high public attendance centers, frequent trips), people with a family history of risk, people infected by coronavirus and health personnel.

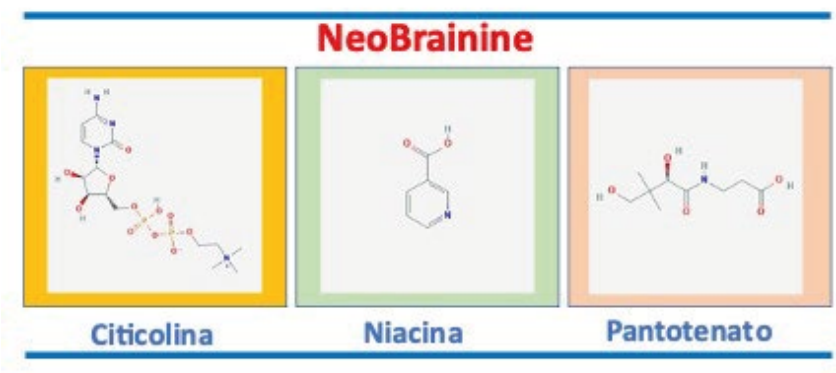
NeoBrainine

NeoBrainine is a new neuroprotective product for the prevention and treatment of various types of dementia and cerebrovascular risks (migraine, cerebral ischemia, thromboembolic accidents, stroke). NeoBrainine is a hybrid bioproduct, created by the team of scientists led by Dr. Ramón Cacabelos, that integrates citicoline, pantothenic acid and niacin molecules. Citicoline is a choline donor, acetylcholine precursor -an essential neurotransmitter for memory-; it is an essential component of the phospholipids of neuronal membranes; and is an intermediate metabolite in nucleotide synthesis.

Pantothenic acid (D(+)-N-(2,4-dihydroxy-3,3-dimethylbutyryl) β-alanine) is an amide of pantoic acid with β-alanine. Also known as vitamin B5, pantothenic acid is a water-soluble vitamin of the B complex, and is essential for life. Pantothenic acid is a fundamental cofactor in the synthesis of coenzyme A (CoA) and in the metabolism and synthesis of carbohydrates, proteins and fats.

Niacin or nicotinic acid ($C_6H_5NO_2$) is another water-soluble vitamin of the B complex (vitamin B3 or vitamin PP) involved in cell metabolism as part of the coenzyme NAD (nicotine-adenine-dinucleotide) and NAD-phosphate (NADP). Its derivatives (NADH, NAD^+, NADPH, $NADP^+$) are essential in energy metabolism and in DNA repair. Its main amide is nicotinamide or niacinamide. Niacin is essential in the synthesis of steroid hormones and in the elimination of toxic xenobiotic agents.

The components of NeoBrainine (Citicoline, Niacin and Pantothenic Acid) exert essential neuroprotective functions for the normal functioning of the central nervous system.



Atremorine capsules

Atremorine has been approved by the European Patent Office for the prevention and treatment of Parkinson's disease.

In its usual presentation, Atremorine is dispensed as a powder to take with yogurt or other similar food; not with water or liquids that can oxidize it or alter its properties. To avoid the use of powder and to facilitate the intake of Atremorine, EuroEspes Biotechnology (Ebiotec) launches Atremorine in capsules. The new presentation is now available nationally and internationally.

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DefenVid-90

EuroEspes Biotecnología (Ebiotec) launches a new presentation of DefenVid with 90 capsules. This new presentation covers a complete monthly treatment regimen. Ebiotec continues to maintain the presentation of 30 capsules.

DefenVid is an immunity enhancer epinutraceutical to combat immunodeficiency states or the fall in natural defenses associated with the use of antibiotics for bacterial infections or chemotherapeutic agents in cancer patients.

DefenVid is a powerful enhancer of cellular immunity at any age against viral infections.

The two presentations of 30 and 90 capsules are already available nationally and internationally.

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DermoGenetics Catalog

The Department of Genomics and Pharmacogenomics of the EuroEspes Medical Center, headed by Dr. Juan Carlos Carril, makes the EuroEspes DermoGenetics Catalog available to doctors and specialists in Dermatology. The Catalog includes the 1000 most relevant genes in skin diseases, from allergic reactions to skin cancer. This is the first Dermogenetics Catalog available in Europe.

Home Care: COVID-19 and Genetic Testing

Following our Community Care policy, facing the COVID-19 crisis, mobility restrictions in various national territories, and the difficulties of displacement of our national and foreign patients, the International Center for Neuroscience and Genomic Medicine has established a Home Care Service to our patients, to individuals and companies to carry out COVID-19 tests (PCR, Antigens, Antibodies) and genetic tests (see the catalog at www.euroespes.com). Phone No.: (+34) 981 780505.

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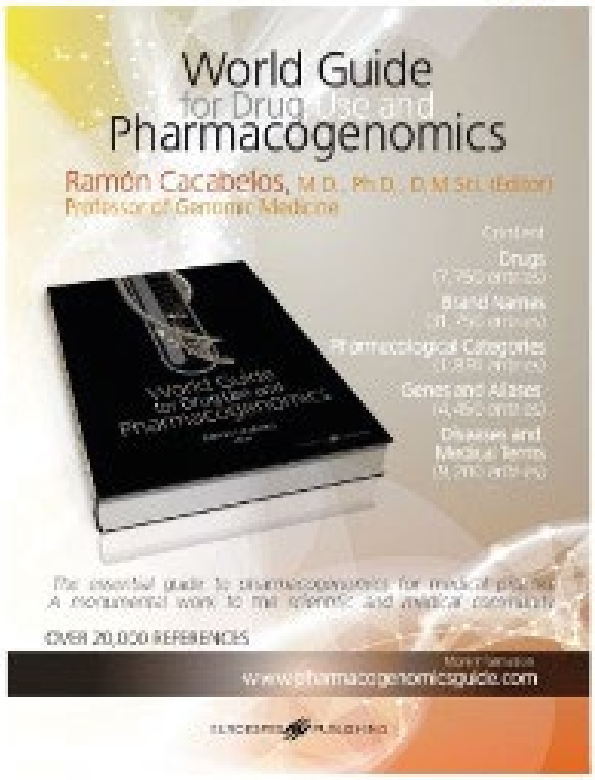

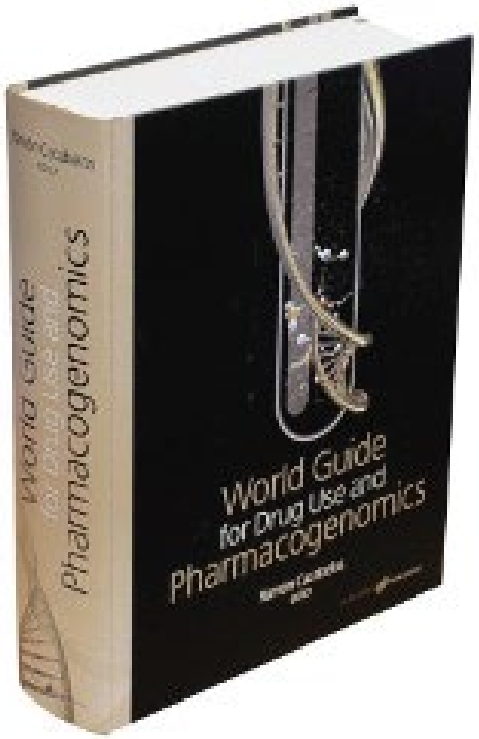

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Editor: Dr. Ramón Cacabelos
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Technical Secretariat: Dr. Vinogran Naidoo, Dr. Juan C. Carril
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euroespes health

International Center of Neuroscience
and Genomic Medicine

Sta. Marta de Babío s/n,
15165-Bergondo,
Corunna, Spain

(+34)981-780505

www.euroespes.com

comunicacion@euroespes.com | protocoloasistencial@euroespes.com