ICP-MS ANALYSIS OF COVID-19 VACCINES FROM ASTRAZENECA, CANSINO, MODERNA, PFIZER, SINOPHARM AND SPUTNIK
55 UNDECLARED CHEMICAL ELEMENTS

AUTHORS:

Lorena Diblasi (a), Martín Monteverde (b), David Nonis (c,) Marcela Sangorrín (d)

[a] Bachelor of Biotechnology, School of Biochemistry, Chemistry and Pharmacy. National University of Tucumán.

[b] Physician, Medical Registration 5458, Medical College of Santa Fe, Argentina. [c] PhD in Cellular and Molecular Biology. California, United States of America.

[d] PhD in Biological Sciences, PROBIEN (Institute for Research and Development in Process Engineering, Biotechnology and Alternative Energies) - CONICET-UNCO.

doi.org/10.55634/2.4.12

SUMMARY:

As a consequence of the high toxicity of the experimental injectable products called “COVID-19 vaccines,” whose use has been vehemently promoted by a massive global vaccination campaign that began at the end of 2020, the global population has developed and suffered from innumerable and varied health conditions in mild, moderate and severe degrees. The number of deaths and adverse effects associated with these injectables far exceeds those produced by the sum of all previous vaccines. In this regard, the atypical increase in sudden deaths and also deaths caused by other ailments was notable. This increase in health disorders in the population began to manifest itself in concomitance with the number of people inoculated and doses administered per person, affecting the inoculated population in particular. Therefore, since 2021 it has become evident that the increase in the quantity and variety of pathologies is clearly associated with the application of these experimental products. Based on the 24 undeclared chemical elements detected by the end of 2023, through the use of SEMEDX and other methodologies, by different groups of independent researchers, to obtain more precise information on the contents of the vials of the different brands of "COVID-19 vaccines", and considering the limited scope of each methodology used for this purpose, the objective of this study was to corroborate these findings, identify possible additional elements to those already discovered and quantify the quantity of all the elements found. To this end, the contents of vials from different batches of the brands AstraZeneca/Oxford, CanSino Biologics, Pfizer/BioNTech, Sinopharm, Moderna and Sputnik V were analyzed. 55 undeclared chemical elements were identified with great precision and quantified by ICP-MS.

KEYWORDS: *COVID-19 vaccines, ICP-MS, Undeclared Chemical Elements, AstraZeneca, Covishield, CanSino Biologics, Pfizer, BioNTech, Comirnaty, Sinopharm, Covilo, Moderna, Spikevax, Sputnik V, nanotechnology, adverse effects, quality control*

1.INTRODUCTION

Shortly after the massive and globally extended vaccination campaign that began in late 2020 and early 2021, with the aim of preventing a series of symptoms that had commonly always been associated with flu conditions and that, for reasons still not clarified, were designated as COVID-19, a large number of people affected by a variety of health disorders around the world began to emerge incrementally, and at the same time in parallel, with the increase in the doses of "COVID-19 vaccines" inoculated in the population (Servín de la Mora, 2023a and 2023b), including the death of millions of people. In a recent study of mortality rates in 17 countries in the southern hemisphere, including Argentina, taking together all age groups in these countries, an increase in the mortality rate of 0.126 ± 0.004% was found, which would imply 17.0 ± 0.5 million deaths, reported by

governments worldwide, due to the inoculation of more than 13.5 billion doses until September 2, 2023. This corresponds to a mass iatrogenic event that killed 0.213 ± 0.006% of the world's population (1 death per 470 people alive in less than 3 years), and in which the ineffectiveness of these inoculations was proven, as they did not prevent any deaths (Rancourt et al., 2023). This alarming and growing number of adverse reactions, the consequences of which in the population remain to this day, associated with the “COVID-19 vaccines”, has been recorded in several vaccine adverse event databases around the world, such as the Vaccine Adverse Event Reporting System (VAERS) of the United States (Open Vaers, 2024), one of the best-known and most detailed vaccine pharmacovigilance registries worldwide.

The different companies and institutes that have been manufacturing and distributing these injectables claim that their products are based on recombinant DNA technologies, such as synthetic messenger RNA or viral particles with a specific genetic load (Maldonado, 2022). Curiously, these technologies had never been used on humans, let alone applied on a massive scale to the entire world population. Therefore, their effectiveness and toxicity in humans were unknown at the time these aggressive inoculation campaigns began. In addition to the above, the experimental condition of these injectables stands out, that is, the lack or absence of studies carried out on humans through appropriate clinical trials and quality controls before being used on a larger scale, and also the restricted access to information on their components. The list of symptoms and clinical pictures is very varied and includes cases of fulminant cancer, autoimmune disorders, bilateral pneumonia, arrhythmia, hepatitis, kidney failure, arthritis, thrombosis, heart disease, stroke, paralysis, spontaneous abortions, perinatal death, infertility, neurodegenerative diseases, etc. (Page et al., 2021; Simpson et al., 2021; Martínez et al., 2022; Dulcey-Sarmiento et al., 2022; McKean and Chircop 2021; Nyström and Hammarström, 2022; Schwab, et al., 2022; Santiago and Oller, 2023; Pérez et al., 2023; Mead et al., 2024; Palmer and Bhakdi, 2022; Chantra et al., 2021; Hulscher et al., 2024). Strikingly, these symptoms are often accompanied by other conditions, and this relationship had never before been recorded except after the administration of COVID-19 vaccines (direct communication with Dr. Young Lee from Korea).

However, given the extreme gravity of the situation described, only timid and limited steps have been taken to address it worldwide. For example, the pharmaceutical company Pfizer, which during the trial, presided over by Judge Pittman in the United States, was forced to declassify documents detailing at least 1,269 adverse effects (Global, 2022). Likewise, in Uruguay, the judiciary demanded that the national government carry out studies "aimed at explaining the notable increase in deaths from COVID-19 from March 2021 in relation to the previous year" despite the increase in people inoculated with the anti-COVID-19 injectables that are the subject of this study (AFP, 2022). Finally, in May 2024, the company AstraZeneca announced that it will stop marketing the COVID-19 vaccine in Europe, originally known by the name of the pharmaceutical company or as the Oxford vaccine, although the brand of the product is Covishield (La Nación, 2024). In Argentina, there are a large number of lawsuits in process (civil and criminal) where adverse effects are reported, both for vaccines from this pharmaceutical company (La voz, 2024), as well as for all the brands that were applied to the population (Causas Judiciales, 2024).

It is also crucially important to note that, according to studies carried out by the Lazarus working group (Lazarus et al., 2011), adverse effects recorded in the VAERS database represent only between 1% and 10% of total cases. This situation arises from many factors, such as the fact that completing the VAERS forms requires an enormous amount of time on the part of the health personnel. Other factors of great importance involve more complex problems that certainly require a more in-depth approach. Often, it is the lack of knowledge of a large part of the health personnel about the complex dynamics and variety of adverse effects produced by many drugs, including vaccines of different applications, which prevents the recognition and visualization of the adverse effects by society. All of this has been translated into severe poisonings that have produced a great deterioration in the health of people by these pharmacological products. This ignorance, partly also encouraged by a powerful pharmaceutical lobby to impose its products on the market, hinders the good judgment of the health professional who is unable to connect this whole series of symptoms with vaccines or other series of drugs or medical treatments (Duesberg, 1996; Humphries, 2015; McBean, 1957). Added to all this is a total lack of quality control over these substances called vaccines by the NRAs (National Regulatory

Authority) of the different countries, which is why it is imperative to investigate and determine the components and basic chemical elements of any type of substances intended for the treatment of human beings, especially in cases where information on the components is scarce or as in the case at hand, the "COVID19 vaccines", where due to their "experimental" status, even the most basic safety protocols have been dangerously circumvented.

This problem alerted independent scientists around the world, since what was declared per se was toxic, due to its status as “experimental” treatments, due to the large number of adverse effects in people inoculated with these products, including the phenomenon of magnetization (a phenomenon that does not match what was declared) and due to the enormous number of sudden deaths associated with these products. Pioneering studies on the content of the “COVID-19 vaccines” determined the presence of graphene oxide in Pfizer’s Comirnaty brand using Micro-Raman and Transmission Electron Microscopy (TEM) techniques (Campra, 2021; Young, 2021).

In a first study in Argentina using Scanning Electron Microscopy coupled with X-ray Scattering (SEM-EDX), vials from AstraZeneca, Moderna, Sinopharm and Sputnik were analyzed and the following chemical elements were detected in them: Carbon, Oxygen, Sodium, Aluminum, Silicon, Calcium, Magnesium, Chlorine[10,11], Bismuth and Technetium (Martínez et al., 2021).

In 2022, Dr. Martín Monteverde and his collaborators detected particles with identical morphology to graphene oxide in a total of 49 vials by optical microscopy. The brands analyzed were Cansino, Pfizer , Sinopharm, AstraZeneca and Sputnik (Monteverde et al., 2022).

In Japan, metallic contaminants were found in vials of the Moderna vaccine using SEM-EDX (Swift and O'donnell, 2021), leading to the recall of three batches, corresponding to 1.63 million doses. In addition, in the same batch of Pfizer FF5357, in several vaccination centers in Japan, in the cities of Sagamihara, Kamakura and Sakai, people belonging to the health system detected flocs of strange whitish material and informed the health authority so that it would not be administered to the population (Kiodo, 2021).

In 2021, Dr. Robert Young reported through SEM-EDX the presence of Carbon, Oxygen, Fluorine, Sodium, Magnesium, Potassium, Calcium, Phosphorus, Chromium, Sulfur, Chlorine, Bismuth, Nitrogen, Manganese, Cobalt, Nickel, Selenium[2], Cadmium, Antimony, Lead, Titanium, Vanadium, Iron, Copper and Silicon in Pfizer-BioNtech, Moderna-Lonza, AstraZeneca's Vaxzevria and Johnson[13] & Johnson's Janssen (Young, 2021 and 2022)

In 2022, a group of 60 German scientists, including Helena Krenn, Klaus Retzlaff, Holger Reißner and the late pathologist Arne Burckhardt, detected the following chemical elements in vials from AstraZeneca, BioNTech/Pfizer, Moderna, Johnson & Johnson, Lubecavax and Influsplit Tetra by SEM-EDX: Cerium, Potassium, Calcium, Barium, Cobalt, Iron, Chromium, Titanium, Gadolinium, Aluminum, Silicon, Sulfur, Sodium, Magnesium, Antimony, Copper, Silver, Phosphorus, Carbon, Oxygen, Chlorine and Cesium. These studies were submitted to the German government authorities for review (Retzlaff, 2022).

In England, the UNIT group, commissioned by EbMCsquared CIC, within the framework of the UNITC-112980 project, carried out the analysis of AstraZeneca, Moderna and Pfizer vials using the Micro-Raman technique, identifying graphene oxide, calcium carbonate with graphene inclusions, iron oxide and polyethylene glycol. In addition, they reported particles with different morphologies: ribbons, sheets, nanotubes, nano dots and nano scrolls (Clayton 2022).

In 2022, Dr. Daniel Nagase from Canada performed SEM-EDX studies on Moderna and Pfizer vials, detecting Carbon, Oxygen, Sodium, Magnesium, Aluminum, Silicon, Sulfur, Chlorine, Potassium, Calcium, Palladium and Thulium (Nagase, 2022).

In 2022, in Argentina, fluorescent particles of various sizes and with an identical fluorescence pattern to the graphene oxide standard were detected in vials from Pfizer, CanSino, Sinopharm, and Astrazeneca using fluorescence-coupled optical microscopy (Sangorrín and Diblasi, 2022a). Later, SEM-EDX detected in these same samples the presence of foreign particles with different morphology, size, and quantity that exceeded the limit specified for particulate matter in the different Pharmacopoeias. The chemical elements Carbon, Nitrogen, Oxygen, Fluorine, Sodium, Magnesium, Copper, Bromine, Titanium, Silicon, Aluminum, Phosphorus, Sulfur, Chlorine, Potassium, Calcium, Iron, Chromium, Manganese, and Cesium (Sangorrín and Diblasi, 2022b).

Dr. Geanina Hagima from Romania studied Moderna and Pfizer vials by SEM-EDX, finding Carbon, Oxygen,

Magnesium, Aluminum, Silicon, Titanium, Yttrium and Tin (Hagima, 2023).

That is, by the end of 2023, independent researchers from different parts of the world had detected 24 undeclared chemical elements in the formulas of the "COVID-19 vaccines" taken together, within micro and nanoparticles composed mainly of Carbon and Oxygen. Likewise, many of these findings agree with previous studies carried out in Italy, where micro and nanoparticles containing the following were detected by SEM-EDX in 44 calendar vaccines: Aluminum, Silicon, Magnesium, Titanium, Tungsten, Chromium, Manganese, Nickel, Iron, Calcium, Copper, Zirconium, Gold, Silver, Cerium, Bromine, Potassium, Zinc and Lead (Gatti and Montanari, 2017).

Based on the undeclared chemical elements within the formula components by pharmaceutical companies and detected by SEM-EDX and other methodologies, the objective of this study was to corroborate, even detect other chemical elements, and quantify their quantity. For this purpose, 13 vials of the "COVID-19 vaccines" were analyzed. The vials analyzed in this study correspond to the following pharmaceutical companies or research institutes: AstraZeneca/Oxford, CanSino Biologics, Pfizer/BioNTech, Sinopharm, Moderna and the Gamaleya National Research Center for Epidemiology and Microbiology in Russia.

For the analysis and identification of the constituent elements in the contents of the vials, the Inductively Coupled Plasma Mass Spectrometry (ICP-MS) technique was used, which allows the detection, identification and quantification of metals and metalloids with high sensitivity and precision. With this methodology, almost 95% of the periodic table can be analyzed from trace levels to much higher concentrations (ng/L–mg/L). Its main advantage over other methodologies is its high sensitivity (low detection limits) and simultaneity (several elements detected in the same analysis). Most of the chemical elements of the periodic table can be determined, except: Hydrogen, Helium, Carbon, Nitrogen, Oxygen, Sulfur, Fluorine, Neon, Silicon, Argon, Iodine, Bromine, Chlorine, Astatine and those with higher atomic mass than Uranium.

2.MATERIALS AND METHODS

2.1 Samples

Thirteen vials of different brands of the so-called "COVID-19 vaccines" were analyzed. The brands, batch numbers and expiration dates are shown in Table 1. The samples were analyzed in duplicate.

TABLE 1: SAMPLES ANALYZED BY ICP-MS

Manufacturing Laboratory	Brand	Batch	Maturity
Astrazeneca/Oxford	Covishield	ABZ3413	11/2021
Astrazeneca/Oxford	Covishield	210581	03/2022
CanSino Biologics	Convidecia	NCOV202106034V	06/2021
Centro Gamaleya y RDIF*	Sputnik V	II-840621	12/2021
Centro Gamaleya y RDIF*	Sputnik V	II-640821	02/2022
Centro Gamaleya y RDIF*	Sputnik V	LYM8	12/2022
Moderna	Spikevax	045C22A	01/2023
Moderna	Spikevax	940915	06/2022
Pfizer/BioNTech	Comirnaty	SELY6	11/2022
Pfizer/BioNTech	Comirnaty	FJ1966	01/2022
Pfizer/BioNTech	Comirnaty	FK8892	03/2022
Sinopharm	COVILO	202108B2715	08/2023
Sinopharm	COVILO	202108B2087	07/2023

*Russian Direct Investment Fund

Table 2 shows the components declared by the different manufacturing laboratories, extracted from the prospectuses requested from INAME-ANMAT through a request for public information (Maldonado, 2022).

It should be noted that the only brands that declare the quantities of excipients are Sputnik and Sinopharm (COVILO), the brands Pfizer (Comirnaty), AstraZeneca (Covishield), Moderna and CanSino do not declare the quantities of excipients, this is very serious at the regulatory level and in terms of Good Manufacturing Practices (GMP) .

2.2 Sampling and digestion

The studies were carried out at ICYTAC (Institute of Food Science and Technology Córdoba-National University of Córdoba-CONICET) by the technical staff in charge of the equipment.

Samples were stored refrigerated at 8 to 11 °C from the time of receipt until the day of digestion. They were

vortexed to ensure homogeneity before collection. Samples were taken with a 5 mL Hamilton syringe (" Gas tight "), a puncture was made in each rubber septum, extracting a sample volume into a previously tared polypropylene tube, recording the mass of the extracted sample (between 0.22 and 0.33 g) on an analytical balance. This procedure was performed in duplicate for each sample. Blank tubes for the procedure were also prepared in duplicate, using the same elements and handled in an identical manner to the samples, except for the sample aggregate, which was replaced by ultrapure water (between 0.22 and 0.24 g for each case).

For sample digestion, 1 mL of double-distilled nitric acid was added to each tube, and the blanks were treated in the same way. They were homogenized with circular vortex movements and left to rest for 6 days (room temperature 26-29 °C). The digested samples were stored at 10 °C in closed polypropylene tubes until dilution.

Prior to the measurement, 9 mL of MERCK brand nitric acid solution, Lot K54405956 223 in ultra pure water 1:50 (v/v) was added to each tube in such a way as to achieve an approximate dilution of 1 in 10. Ultrapure water was used (conductivity 0.055 µ S/cm, Sartorius brand equipment, Arium 311 model, with a final filter of 0.22 µ m).

It should be noted that the presence of chemical elements, and subsequent identification, is independent of temperature changes on the sample, for example, loss of the cold chain.

2.3 ICP-MS Equipment and Measurement

The ICP-MS equipment, Agilent brand, model: 7500cx, with auto sampling, model was used

ASX-500 Series. Plasma gas, filler gas, and other uses were Argon grade 5.0, (>99.999%

Air liquide, Argon N50 type: Alphagaz). For some elements, collision with Helium (quality 5.0, Linde) was used. The software used was Agilent G1834B, ChemStation B.04.00.001. Four types of external calibration curves were prepared, covering all the elements to be quantified, from the commercial mixtures.

2.4 Data analysis

The calibration curve after acquisition was adjusted according to the range of counts per second (CPS) presented by the samples, to have greater precision, discarding those points of the curve with CPS values greater than the maximum value of the samples, for each element. The replicas were measured at two temperatures (the standard of 2°C and the one of 30°C) to determine a correction factor on the measured calibration curves. Each reported sample is the result of the subtraction of the average value of the blank tubes of procedure for each element, and is corrected by the dilution factor of the digestion and the weighed mass. In turn, the replica includes a correction factor for the measured temperature difference. The reported detection limit (LDM) was calculated as 3.3 times the sample standard deviation of the measured values of the blanks. The limit of quantification (LCM) used is highlighted with the values in bold in the concentration tables, and was calculated as 10 times the sample standard deviation of the same blanks. The hypothetical mass of the digestion procedure blanks was the mass of water used to simulate the sample.

3.RESULTS

3.1 AstraZeneca (Covishield) vials

Two batches of the AstraZeneca brand were studied. In batch ABZ3413, 15 chemical elements were detected, of which 14 are undeclared, and in batch 210581, 21 elements were detected, of which 20 are undeclared (Table 3).

3.2 CanSino vials (Convidecia)

A batch of the CanSino brand was analyzed, 22 elements were detected, of which 20 are undeclared (Table 4).

3.3 Pfizer (Comirnaty) vials

Vials from three batches of the Pfizer brand were analysed. In batch FJ1966, 22 elements were detected, of which 19 are undeclared (Table 5), in batch FK8892, 19 elements were detected, of which 16 are undeclared. Batch SELY6 was analysed on two dates, in November 2023, 23 chemical elements were detected, of which 21 elements are undeclared, in January 2024, 26 chemical elements were detected, of which 23 elements are undeclared.

3.4 Moderna (Spikevax) vials

Two batches of the Moderna brand were analyzed. In batch 940915, 23 elements were detected, of which 21 elements are undeclared, in batch 045C22A, 17 elements

TABLE 2. COMPONENTS DECLARED BY THE DIFFERENT MANUFACTURING COMPANIES

Declared Components	Cansino Biologics	Astrazeneca	Pfizer Comirnaty	Moderna	Sinopharm	Sputnik VI/II
Sodium acetate trihydrate				√		
Acetic acid				√		
Recombinant adenovirus	√	√				√
Water for injections	√	√	√	√		√
ALC-0159			√			
ALC-0315			√			
Virus antigens Inactivated SARS-CoV-2					√	
mRNA with modified nucleotides (Elasomeran)				√		
mRNA with modified nucleotides (Tozinameran)			√			
L-Histidine Hydrochloride monohydrate		√				
Trometamol Hydrochloride				√		
Magnesium chloride	√					√
Potassium chloride			√			
Sodium chloride	√	√	√		√	√
Cholesterol			√	√		
Potassium dihydrogen phosphate			√			
Sodium dihydrogen phosphate					√	
DSPC			√	√		
EDTA		√				√
Ethanol		√				√
Disodium hydrogen phosphate			√		√	
Glycerin	√					
HEPES	√					
Aluminum hydroxide					√	
L-Histidine		√				

Mannitol	√					
PEG 2000-DMG				√		
Polysorbate 80	√	√				√
Saccharose	√	√	√	√		√
SM-102				√		
Tris(hydroxymethyl)aminomethane						√

TABLE 3: CHEMICAL ELEMENTS FOUND BY ICP-MS IN ASTRAZENECA BATCHES

Element	Chemical	No.mass	AstraZeneca ABZ3413 (ug/L)	AstraZeneca 210581 (ug/L)
B	Boron	11	20	360
Na	Sodium	23	1100000	9100000
Mg	Magnesium	24	30000	350000
Al	Aluminun	27	810	
K	Potassium	39	5100	
Ca	Calcium	40		1800
V	Vanadium	51	2,23	
Cr	Chrome	52	21	44
Fe	Iron	56	82	
Ni	Nickel	58		50
Co	Cobalt	59	0,40	
Cu	Copper	63		34
Ga	Gallium	70	0,10	
As	Arsenic	75	4,40	15
Se	Selenium	79		5,10
Rb	Rubidium	85	1	1,80
Sr	Strontium	88		1,40
Nb	Niobium	93		0,22
Mo	Molybdenum	96		13
Pd	Palladium	106		2
Ba	Barium	137		2,80
Ce	Cerium	140	0,22	

Tb	Terbium	159	0,004	
Hf	Hafnium	178		37
Pt	Platinum	195		2,20
Au	Gold	197		3,90
Tl	Thallium	204		0,69
Bi	Bismuth	209		12
Th	Thorium	232		9,90
U	Uranium	238	0,02	
Total items detected			**15**	**21**
Date of sample analysis			03/11/2023	27/12/2023

TABLE 4: CHEMICAL ELEMENTS FOUND BY ICP-MS IN CANSINO BATCH (CONVIDECIA)

Element	Chemical	mass No.	CanSino NCOV20210603 4V (ug/L)
B	Boron	11	20
Na	Sodium	23	800
Mg	Magnesium	24	13000000
Al	Aluminum	27	870000
K	Potassium	39	1900
Ca	Calcium	40	150
V	Vanadium	51	38
Cr	Chrome	52	21
Fe	Iron	56	37
Ni	Nickel	58	0.1
Co	Cobalt	59	28
Cu	Copper	63	68
Ga	Gallium	70	0.54
As	Arsenic	75	9.20
Se	Selenium	79	0.60
Rb	Rubidium	85	5
Sr	Strontium	88	1.3
Nb	Niobium	93	14
Mo	Molybdenum	96	11

Pd	Palladium	106	1.20
Ce	Cerium	140	0.20
Tb	Terbium	159	2.50
Total items detected			**22**
Sample analysis date			27/12/2023

TABLE 5: CHEMICAL ELEMENTS FOUND BY ICP-MS IN BATCHES OF PFIZER (COMIRNATY)

Element	Chemical	mass No.	Pfizer/BioNTech FJ1966 (ug/L)	Pfizer/BioNTech FK8892 (ug/L)	Pfizer/BioNTech SELY6 (ug/L)	Pfizer/BioNTech SELY6 (ug/L)
Li	Lithium	7			62,00	17
B	Boron	11	1400	170	2200	860
Na	Sodium	23	27000000	58000000	4900000	4700000
Mg	Magnesium	24	54000			
Al	Aluminum	27		230000	61,00	34000
P	Phosphorus	31	940000	6700000		390000
K	Potassium	39	7000000	64000000	110000	66000
Ti	Titanium	48	1000	6200		
V	Vanadium	51			9,20	21
Cr	Chrome	52	56	57	30,00	72
Mn	Manganese	55		19		
Ni	Nickel	58	27	18		4,8
Co	Cobalt	59			0,87	1,7
Cu	Copper	63	90	71		
Zn	Zinc	65	540			2700
Ga	Gallium	71	0,55	2,20	0,35	0,72

As	Arsenic	75	18	22	27,00	13
Se	Selenium	78		7,50		
Rb	Rubidium	85	1,10	1,90	1,50	
Sr	Strontium	87	2,30	1,40		12
Nb	Niobium	93	0,6	0,8		
Mo	Molybdenum	96	12			
Ru	Ruthenium	101	0,001		0,001	
Rh	Rhodium	103				0,04
Pd	Palladium	105	0,51	0,8	0,10	0,25
Ba	Barium	137	64	3,30	69,00	33
La	Lanthanum	139			0,56	0,35
Ce	Cerium	140	1,40		5,10	2,4
Pr	Praseodymium	141	0,14			
Sm	Samarium	150				0,025
Eu	Europium	153			0,02	0,025
Tb	Terbium	159			0,0002	
Gb	Gadolinium	157				0,02
Dy	Dysprosium	162				0,014
Er	Erbium	167			0,06	
Hf	Hafnium	178	3,10	2		
W	Tungsten	183	4,80			
Pt	Platinum	195			0,42	
Pb	Lead	208			45,00	
U	Uranium	238			0,25	
Total items detected			**22**	**19**	**23**	**26**

Sample analysis date 27-12-2023 27-12-2023 03-11-2023 03-01-2024

TABLE 6: CHEMICAL ELEMENTS FOUND BY ICP-MS IN MODERNA VIALS

Chemical	Element	Mass No.	Moderna 940915 (ug/L)	Moderna 045C22A (ug/L)	Moderna 045C22A (ug/L)
B	Boron	11	320		
Na	Sodium	23	47000000	1300000	180000
Mg	Magnesium	24		170	13000
Al	Aluminum	27			17000
P	Phosphorus	31	430000		400000
K	Potassium	39	39000000		36000
Ca	Calcium	40			4500
Ti	Titanium	48	9500		
V	Vanadium	51		1.70	5.2
Cr	Chrome	52	58	23.00	46
Mn	Manganeso	55	3.60		15
Fe	Iron	56		270,00	2400
Ni	Nickel	58	15		20
Co	Cobalt	59		0.18	2.6
Cu	Copper	63	44		
Zn	Zinc	65			4600
Ga	Gallium	70	1.40	0.11	0.47
As	Arsenic	75	20	1.31	
Se	Selenium	79	3.30		
Rb	Rubidium	85	1		2.9
Sr	Strontium	87	0.30	5.10	17
Y	Yttrium	89			0.22
Zn	Zirconium	91	550		

Nb	Niobium	93	2.20		
Mo	Molybdenum	96	3.90		
Ru	Ruthenium	100			0.0007
Pd	Palladium	100	2.80		
Ag	Silver	107	5.10		
Cd	Cadmium	112			3.2
Sn	Tin	118	37	17	
Sb	Antimony	121			1.1
Ba	Barium	137	11		
La	Lanthanum	139		0.38	0.18
Ce	Cerium	140		0.17	0.27
Pr	Praseodymium	141			0.025
Nd	Neodymium	144			0.14
Tb	Terbium	159		0.011	
Dy	Dysprosium	162		0.019	0.0051
Ho	Holmium	165		0.005	
Yb	Ytterbium	173		0.008	
Hf	Hafnium	178	15		3.3
W	Tungsten	183			11
Au	Gold	197			1.8
Hg	Mercury	200			13
Tl	Talium	204			0.28
Pb	Lead	207			130

Th	Thorium	232	0,82		
U	Uranium	238		0,023	
Total items detected			**23**	**17**	**31**

Date of sample analysis 27-12-2023 03-11-2023 03-01-2024

TABLA 7: ELEMENTOS QUÍMICOS ENCONTRADOS POR ICP-MS EN LOTES SINOPHARM (COVILO)

Chemical	Element	Mass No.	Sinopharm 202108B2087 (ug/L)	Sinopharm 202108B2715 (ug/L)	Sinopharm 202108B2715 (ug/L)
Li	Lithium	7	42	13	
B	Boron	11	2500	2000	690
Na	Sodium	23	39000000	5000000	4200000
Mg	Magnesium	24			38000
Al	Aluminum	27	3100000	205000	2700000
P	Phosphorus	31	3000000		2000000
Ca	Calcium	40	1700		2800
Ti	Titanium	48	3200		
V	Vanadium	51	17	8,15	17
Cr	Chrome	52	76	28,5	61
Fe	Iron	56		31	
Ni	Nickel	58	20		
Co	Cobalt	59		0,43	0,16
Cu	Copper	63	100		
Ga	Gallium	70	5,5	6,25	7,7
As	Arsenic	75	9,6	6,65	
Se	Selenium	79			4,8

Sr	Strontium	87	3,6		2,8
Y	Yttrium	89	20		
Nb	Niobium	93	0,5		
Mo	Molybdenum	96	2,8		
Ru	Ruthenium	101		0,001	
Pd	Palladium	106	0,4	0,03	
Sn	Tin	118		0,85	
Ba	Barium	137	360	16,5	
Te	Tellurium	127		0,4	
Ba	Barium	137	360	16,5	
La	Lanthanum	139	3,5		0,055
Ce	Cerium	140	21	1,2	0,68
Pr	Praseodymium	141			0,018
Nd	Neodymium	144			0,16
Sm	Samarium	150			0,044
Eu	Europium	152		0,02	
Gd	Gadolinium	157			0,023
Tb	Terbium	159		0,006	
Dy	Dysprosium	162		0,026	
Ho	Holmium	165		0,0056	
Er	Erbium	167	0,47	0,03	0,0028
Yb	Ytterbium	173		0,012	
Hf	Hafnium	178	2,4		
W	Tungsten	183	1,9		

Pt	Platinum	195		0,29	
Au	Gold	197	0,7		
Total items detected			**25**	**25**	**20**

Sample analysis date 27-12-2023 03-11-2023 0 3-01-2024

TABLE 8: CHEMICAL ELEMENTS FOUND BY ICP-MS IN SPUTNIK BATCHES

Chemical Element		Mass Nº	Sputnik LYM8 (ug/L)	Sputnik II-840621 (ug/L)	Sputnik II-840621 (ug/L)	Sputnik II-640821 (ug/L)
Li	Lithium	7		12		
B	Boron	11	1000	2500	700	1300
Na	Sodium	23	58000000	4300000	3000000	48000000
Mg	Magnesium	24	280000	27000	50000	310000
Al	Aluminum	27		200	2600	
P	Phosphorus	31				33000
K	Potassium	39		9500	7200	
Ca	Calcium	40	2000			5000
Ti	Titanium	48				56
V	Vanadium	51	26	9,60	17	16
Cr	Chrome	52	110	38	63	95
Ni	Nickel	58	33			51
Co	Cobalt	59			0,37	
Cu	Copper	63	160			170
Zn	Zinc	65	150			140
Ga	Gallium	70	0,2	0,36		0,33
As	Arsenic	75	13	9,60		9,20

Se	Selenium	79				4,10
Rb	Rubidium	85	2,4	2,50		3,20
Sr	Strontium	88	8,1	4,10		4,50
Nb	Niobium	93	1,2			0,20
Mo	Molybdenum	96				2,80
Ru	Ruthenium	101			0,017	
Pd	Palladium	106	7,60	0,06		0,70
Cd	Cadmium	112		10	2,3	
Sn	Tin	118		88		8,80
Ba	Barium	137	920	18		21
Ce	Cerium	140	31	62	22	30
Nd	Neodymium	144			0,051	
Gd	Gadolinium	157	0,30	0,27	0,23	0,30
Tb	Terbium	159		0,006		
Ho	Holmium	165		0,0054		
Yb	Ytterbium	173		0,006		
Hf	Hafnium	178	3,90			5
Au	Gold	197	1,10		0,43	2
Tl	Thallium	204				0,30
Pb	Lead	207		24		
Th	Thorium	232	0,60			1,10
Total elements detected			**21**	**22**	**27**	**27**

Date of sample analysis 27-12-2023 03-01-2024 27-12-2023

were detected, of which 16 are undeclared (Table 6). This last batch was quantified again in January 2024, 31 elements were detected, of which 29 are undeclared.

3.6 Sinopharm vials (COVILO)

Different elements were detected in the three batches analyzed: 202108B2087 and 202108B2715 COVILO, 25 elements were detected, 22 and 23 are undeclared elements respectively. The determination of batch 202108B2715 was repeated in January 2024, on this date only 17 undeclared elements were detected out of the 20 detected (Table 7).

3.7 Gamaleya Center and RDIF Roads, Russia (Sputnik)

Of the three Sputnik batches analysed, batch LYM8 contained 21 elements , of which 19 are undeclared (Table 8). Batch II-840621 was analysed on two dates and contained a total of 22 and 27 elements, of which 20 and 25 are undeclared respectively. Finally, batch II-640821 contained 27 elements, of which 24 are undeclared (Table 8).

4.DISCUSSION

4.1 Structure and composition of the contents of injectables

The analysis of different samples from several batches of the injectable brands described above yielded surprising and unexpected results in relation to what was claimed by the manufacturers of these injectables called “COVID-19 vaccines” (Table 2). A first fundamental analysis highlights the presence of 55 undeclared chemical elements in all the brands analyzed taken together (Tables 9 and 10). The variety of elements found includes metals such as Magnesium, Copper, Cobalt, Gallium, Gold, Platinum, Aluminum, etc., as well as exotic elements, in low quantities and with restricted distribution in nature, such as Terbium and Europium, belonging to the lanthanides, which are used for important applications in the area of electronics. Given the diversity and characteristics of the elements found, and their notable presence in all brands, it is extremely unlikely that the same is due to any fortuitous event outside the manufacturing, transportation and distribution process, such as contamination or adulteration. An analysis of the distribution of the elements found in the different batches of the brands studied shows that the content of all the vials does not consist of homogeneous solutions and does not comply with “content uniformity” as would be expected in pharmaceutical products of this category. The distribution pattern of the elements in the samples of the vials corresponds rather to one originating from a heterogeneous content. It is likely that the heterogeneous content observed responds to some type of stratification or structural organization formed by different phases that would include each of them different elements with particular distributions and organizations.

In the ICP-MS studies and analyses to determine the elements present in the vials of the brands and batches already described, an unusual pattern of distribution per sample of the detected elements was found , which we will refer to from now on as “differential distribution of elements found per sample”. That is, there were differences in the number of elements detected even in samples taken from the same vial (Table 9), and this effect is easier to visualise especially in those samples from brands with a higher number of analyses. These differences were independent of the time at which the samples were taken and analysed or of the pharmaceutical company responsible for their manufacture.

The average volume of the samples taken for ICP-MS analysis was 200 µL out of a total volume per vial ranging from 500 µL to 2000 µL, depending on the brand. This same pattern of differential distribution of the identified elements was observed in all brands with more than one sample per vial, although the same effect probably also occurred in those from which a single sample was analyzed, evidenced by similar numbers of elements found per sample ranging between 20 and 25 elements since these single samples have the same variations as the samples taken from the same vial. However, there are certain elements, such as sodium, that were found in all samples. Perhaps this is due in part to its greater abundance in the contents of the vials, but it may also be due to the fact that it is found in a homogeneous matrix common to the different strata where the rest of the elements are found with differential distribution per sample.

In order to better understand this situation, it is important to take into account some physical-chemical characteristics of the contents of the vials, such as their viscosity and density. The content is not aqueous, it is viscous and dense, probably as a consequence of the

presence of some "gelling or structuring" component. In previous studies, an absorption band at 1450 cm-1 was determined by Micro-Raman in many of the 110 particles studied by Dr. Pablo Campra (Campra, 2021), which led to the hypothesis of the presence of some hydrogel (Andersen, 2021); likewise, the research group from Germany performed analysis of Pfizer samples by MALDI-TOF detecting PEG (polyethylene glycol) (Retzlaff, 2022); the research group from England also identified PEG. In a study from Argentina, a Pfizer sample was subjected to atomic force microscopy (AFM) to verify the presence of microcircuits, but the humidity of the sample interfered with the topography, despite trying to evaporate all the water by subjecting the sample to vacuum conditions for 3 days (Diblasi and Sangorrín, 2023). This state of equilibrium in the amount of water associated with the samples was recorded during several weeks of incubation and is probably produced by gelling agents, because they have a high affinity for water.

Given all these characteristics of the analysed vials, their content is probably of a rather complex nature and different from what is usually found in injectables for similar purposes (in the case at hand, solutions composed of lipid nanoparticles with genetic material attached to them) whose physical characteristics are those of homogeneous liquids. Curiously, these characteristics are the same for all the vials of the brands analysed in this study. This content is probably made up of different phases or structures that are organised in gradients or some other type of arrangement, with determined and apparently rigid spatial distributions in such a way that their corresponding components remain fixed in each phase. In addition to this common matrix, the content of each vial may also be composed of other phases with their own constituent elements in certain proportions and particular quantities of each phase. Only a content with a structure of this type, and never a homogeneous solution, would give rise to the observed pattern of differential distribution of elements per sample. It is important to mention that before taking a sample from any of the vials, they were subjected to vortex mixing to ensure their homogeneity and that the samples were representative; however, the original structure of the content was not affected under these mixing conditions, with which a uniform distribution of the components would normally have been achieved if it were a homogeneous solution.

It is important to highlight that most of the elements found in lower concentration are the same in all vials of all brands analyzed. Likewise, they present the same differential distribution pattern per sample mentioned above. There are also no significant differences between samples of different brands with respect to the quantities of these elements found in lower quantities, which is evidence of substances with complex, non-homogeneous contents and composed of rigid and different phases, injectable which basically do not differ significantly from each other based on the parameters analyzed in this study.

The set of all these results of the analysis of the same reflects the possibility of using the same methodology and technology for the production of the injectables of the brands analyzed in this work. On the other hand, these results show that the content of these injectables is not a homogeneous solution, because if this were the case all the elements found should be present in all the samples, in the same quantities, regardless of their size.

Solutions always have a homogeneous distribution of the solutes that compose or integrate them, even if these are found in very low concentrations in the same. In a random sampling of any solution, no matter how small the volume of the sample, all the constituent elements of the solution of interest will be present in all the samples taken from that solution in the same proportions and relative quantities. The complex structure and characteristics of the contents of the vials of all the brands studied in this work make it impossible to quantify the elements found from the sampling carried out, since it is not possible to use the partial quantities found in the sampling to extrapolate them to the rest of the volume of each vial, since the presences and relative quantities of the elements vary considerably in each phase and according to the nanostructures of which they are an integral part. In addition, we do not know the number of phases and their respective volumes in these injectables. It is likely, considering the phases of the contents of the vials, that those elements in the vials with differential distribution patterns are found associated in discrete units, and at the same time are grouped in micro or nanoparticles, but certainly not as solutes in a solution.

Therefore, the quantities of the elements obtained by extrapolation of the partial quantities obtained from the samples will not provide accurate or useful information about the roles that they have. If the elements found in this study are part of micro or nanoparticles, what is really important and a priority is to determine the

identities, functions and implications of these particles since the adverse reactions caused to people's health by the administration of these inocula are decidedly due more to a question of functional level than to the effect caused by the mere quantity of each element taken individually. On the other hand, the only advisable option to accurately determine the quantity of each element found in these injectables would be to perform an ICP-MS analysis of the total content of each vial using a more representative sample number.

These results and observations are in line with what has been discovered in previous optical microscopy and SEM-EDX studies, which demonstrate the presence of micro and nano particles with different characteristics in the contents of the vials (Nagase, 2022, Sangorrín and Diblasi, 2022b, Hagima, 2023). For example, in optical microscopy studies on aliquots of the contents of the vials of the same brands analyzed in this study, various types of microparticles with sizes in the range of 1-500 µ m were found, whose identities and functions are mostly unknown. Among the micro particles found, graphene or derivatives thereof such as graphene oxide or graphene hydroxide were found, which were identified in particles with certain characteristics analyzed by the Micro-Raman and Transmission Electron Microscopy (TEM) techniques (Campra, 2021; Young, 2022). These types of orthogonal microparticles are formed after transferring part of the contents of the vials into distilled water or physiological solution. They originate from other even smaller particles (of nanometric dimensions and composed mostly of elements that present differential sampling distribution) present in the phases of the contents of the vials but that cannot be visualized with optical microscopy. The action of any biological agent during these formation processes is ruled out because they were carried out under sterile conditions (Nixon, 2023; Lee and Broudy, 2024).

These orthogonal microparticles differ substantially from organic and inorganic salt crystals for the following reasons: the temporal pattern of their formation process and the conditions under which it occurs; their morphologies do not present fractal-type geometric structures, which are characteristic of organic and inorganic salt crystals; and because their constituent elements, in addition to being different from those of organic or inorganic salt crystals, are present in heterogeneous quantities and distributions. Many of the elements in these particular microstructures have been identified with a high degree of precision, through the use of SEM-EDX, a technique based on scanning electron microscopy, to specifically focus on the microstructure to be analyzed, coupled with X-ray scattering, to identify the elements that make up said microstructure (Martínez et al., 2021, Young, 2022, Nagase, 2022, Sangorrín and Diblasi, 2022b, Hagima, 2023).

The elements contained in these orthogonal microparticles coincide with those detailed in Table 9, where a high diversity of chemical elements can be seen, including different and varied metals and even other more exotic elements. Notably, a high proportion of the elements identified in these microparticles by SEM-EDX have the differential sampling distribution pattern found in this study by ICP-MS. There is, then, a clear coherence and correlation between the results obtained from these two different techniques carried out by independent researchers from different parts of the world, where different batches (although of the same brands) were used as the object of study to those used in this study. The results of both techniques reinforce each other, and strongly demonstrate the concept of a content of the vials structured in different, rigid and separate phases, which in turn contain sets of micro or nanoparticles of different nature, given their different compositions, which do not mix or interact with the microparticles of other phases. These orthogonal microparticles, as we have just established, are not found as such within the contents of the vials. The formation of the orthogonal microparticles takes place outside the contents of the vials, from nanoparticles present within the gelatinous and dense content of the vials, when aliquots of them are transferred to distilled water or saline solution (Lee and Broudy, 2023). Once released from the compartmentalization in which they were found, and dissolved in any of these media, the nanoparticles that make up the microparticles begin to undergo a process that we will henceforth call “self-assembly”, in which they gradually form structures that vary mainly in size (perhaps influenced by a non-optimal environment for which they were designed), but with a common pattern in their morphologies that is reminiscent of the shape of certain microcircuits, although their functions are not necessarily related to those (Nixon, 2023). These emerging orthogonal microparticles stand out for being composed of small quadrilaterals of different sizes, such as rhombuses, squares, rectangles, etc. that some inexperienced people could confuse with crystals of inorganic or organic salts whose formation processes,

geometry and composition differ substantially from those of the microparticles.One of the questions that emerges from these discoveries is the characteristics of the nanoparticles, which seem to be “activated” and self-assembled when they are in a different medium than the contents of the vial. Perhaps the phases and structures of the contents of the vials, and the differential distribution of elements per sample, have as their basis the characteristics of the nanoparticles.

TABLA 9: FRECUENCIA DE LOS ELEMENTOS QUÍMICOS EN LAS MUESTRAS ANALIZADAS

NAME AND SYMBOL EQ		MASS NO.	No. of samples % with EQ	
31 Erbium	Er	167	5	29
32 Zinc	Zn	65	5	29
33 Thorium	Th	232	5	29
34 Ruthenium	Ru	100	4	24
35 Thallium	Tl	204	4	24
36 Uranium	U	238	4	24
37 Iron	Fe	54	4	24
38 Dysprosium	Dy	162	4	24
39 Ytterbium	Yb	173	3	18
40 Manganese	Mn	55	3	18
41 Cadmium	Cd	112	3	18
42 Antimony	Sb	121	3	18
43 Praseodymium	Pr	141	3	18
44 Europium	Eu	152	3	18
45 Holmium	Ho	165	3	18
46 Platinum	Pt	195	3	18
48 Neodymium	Nd	144	3	18
49 Samarium	Sm	150	3	18
50 Yttrium	Y	89	3	18
52 Tungten	W	183	3	18
52 Rhodium	Rh	103	1	6
53 Zirconium	Zr	91	1	6
54 Silver	Ag	107	1	6
55 Tellurium	Te	127	1	6
56 Mercury	Mg	200	1	6
57 Bismuth	Bi	209	1	6
1 Sodium	Na	23	17	100
2 Chrome	Cr	52	17	100
3 Boron	B	11	15	88
4 Gallium	Ga	70	15	88
5 Arsenic	As	75	14	82
6 Strontium	Sr	87	13	76

NAME AND SYMBOL EQ		MASS NO.	No. of samples % with EQ	
7 Cerium	Ce	140	13	76
8 Vanadium	V	51	12	71
9 Palladium	Pd	106	12	71
11 Magnesium	Mg	24	11	65
12 Rubidium	Rb	85	11	65
13 Aluminum	Al	27	10	59
14 Nickel	Ni	58	10	59
15 Potassium	K	39	9	53
16 Hafnium	Hf	178	9	53
17 Phosphorus	Hf	31	8	47
18 Calcium	Ca	40	8	47
19 Cobalt	Co	59	8	47
20 Copper	Cu	63	8	47
21 Niobium	Nb	93	8	47
23 Gadolinium	Gd	157	6	35
24 Tin	Sn	118	6	35
25 Lithium	Li	3	6	35
26 Titanium	Ti	48	6	35
27 Selenium	Se	165	6	35

NAME AND SYMBOL EQ		MASS NO	No. of samples % with EQ	
28 Molybdenum	Mo	96	6	35
29 Lanthanum	La	139	6	35
30 Terbium	Tb	159	5	29
47 Lead	Pb	207	3	1
10 Barium	Ba	137	12	71

EQ: chemical element

The purpose is to maintain and prevent these nanoparticles from assembling to form microparticles.orthogonal within dthe vial. The presence of gelling substances and the density of the contents of The vials probably help to keep the nanoparticles fixed in a certain position.inside each vial, in order to prevent the mixing of the different types of nanopa articulates and their association before time, in an inappropriate place. Following this same line of thought, it is notable that The temperature required for the conservation of these injectables is so low (-80°C), and it must be kept that way during storage and transport. This would probably contribute to the same purpose of maintaining the nanoparticles in the same position within the contents of the vials and inactive so that they remain stable and without associating with others until their release in the human body.

The temperature variable during logistics is of particular interest, since if the content There was genetic material, as claimed by the pharmaceutical companies responsible fordesign and manufacture these injectables, this does not require such low temperatures, in fact temperatures close to 20°C below zero would be more than sufficient for its proper conservation. [19]

Furthermore, if the nucleotides that make up the genetic material are modified to give greater stability to the DNA or RNA, the structure of this particular genetic material is more resistant than that of the natural one, even at room temperature. Similarly , subjecting lipid nanoparticles in which the genetic material is encapsulated to freeze-thaw cycles causes their denaturation and drastically reduces the capacity of the genetic material to enter the

cells as intended (Segalla, 2024). Therefore, based on these considerations, the unnecessary reason for using temperatures of no more than 80°C below zero, with the high costs and risks that this entails, for the conservation of the contents of vials that would supposedly be of a genetic nature, is not understood. However, this would make sense if the purpose were to preserve components of a different nature and requirements and with the characteristics that we have been describing in this work.

4.2 Discrepancies between what was declared and what was observed

The results of the ICP-MS analysis in this work demonstrate the existence of 55 undeclared chemical elements in the 17 samples analyzed from the 6 brands of "COVID-19 Vaccines" (Table 9).

The presence of many heavy metals was detected in the analyzed samples, which are associated with toxic effects on human health. The European Union recognizes eleven toxic elements as heavy metals; Arsenic, Cadmium, Cobalt, Chromium, Copper, Mercury, Manganese, Nickel, Lead, Tin and Thallium (Witkowska et al., 2021; Horgan, 2010). All these elements were found in the different batches with different frequencies of occurrence in the sampling: Chromium (100%), Arsenic (82%) and Nickel (59%), then followed by 40% Cobalt and Copper; 35% Tin, 18% Cadmium, Lead and Manganese; and finally 6% of the samples contain Mercury (Table 9).

On the other hand, the samples analyzed in this work contain some of the 11 elements of the lanthanide group (Table 9) and are detected with different frequencies of occurrence: Lanthanum (35%), Cerium (76%), Neodymium (18%), Samarium (18%), Europium (18%), Gadolinium (35%), Terbium (29%), Dysprosium (24%), Holmium (18%), Erbium (29%) and Ytterbium (18%). These elements have luminescent and magnetic effects (Echeverry and Parra, 2019), and their safety and toxicity in the human body have not yet been demonstrated. In fact, the ICH Q3D guide (ICH, 2022) does not consider lanthanides within elemental impurities. It should be noted that this guide does not cover biological products, such as vaccines, which continues to denote the lack of quality control for these substances. Lanthanides are frequently used in the electronics industry and in no case as part of biosensors due to their cytotoxic effects (Voncken, 2016; Balaram, 2018).

To date, taking into account the results obtained by both SEM-EDX and ICP-MS (Martínez et al., 2021; Young, 2021; Retzlaff et al., 2022; Nagase, 2022; Sangorrín and Diblasi, 2022b; Hagima, 2023) for the brands studied in the present study, it is observed that a total of 62 undeclared chemical elements were detected (Table 10).

Table 2 shows the formulas declared by the different brands, from here the chemical elements that make up these compounds can be deduced. These chemical elements declared by the manufacturers are shown in Table 10. Likewise, this table shows the elements detected by ICP-MS and those detected by SEM-EDX. It is of utmost importance to merge the findings obtained by both techniques, since each technique has its limitations and differences. For example, by SEM-EDX the sample volume can vary between 10-20 uL, limiting itself to observing the particles that are in that small volume, while by ICP-MS the sample volume is around 200 uL. This volume is more representative, considering that the doses are 500 uL, except for Pfizer where the doses are 300 uL. In turn, SEM-EDX can detect Carbon, Nitrogen, Oxygen, Silicon, Fluorine, Chlorine and Bromine, elements that cannot be determined by ICP-MS and that are present in the samples. Of the latter, only Carbon, Nitrogen and Oxygen are declared in the manufacturers' formulas (Table 2). Hydrogen cannot be detected by either technique.

In the ICP-MS technique, the sample is digested with HNO_3, leaving the free chemical elements in the solution, while SEM-EDX detects chemical elements within the micro and nanoparticles found in the sample. One of the advantages of the ICP-MS technique is that the chemical elements can be quantified and their concentration (µg/L) can be known.

Table 10 shows that the brands that were most frequently analysed by both SEM-EDX and ICP-MS were Pfizer, Moderna and Astrazeneca. The highest number of undeclared chemical elements were detected in their formulas. On the other hand, the Cansino brand has the lowest number of undeclared chemical elements detected, but also the lowest number of analyses. Obviously, whether more or fewer elements appear depends on the number of analyses that could be carried out rather than on the brand. In addition, it is evident that despite having different declared formulas, undeclared chemical elements are found in common, such as Boron, Titanium, Aluminium, Arsenic, Nickel, Chromium, Copper, Gallium, Strontium, Niobium, Molybdenum, Barium and Hafnium, which appear in all brands.

TABLA 10: ELEMENTOS QUÍMICOS DETECTADOS POR SEM-EDX E ICP-MS

Empresas Farmaceúticas (EF)	Cansino Biologics	AstraZeneca (Comirnaty)	Pfizer	Moderna	Sinopharm	Sputnik VI	Sputnik VII
Elementos químicos (EQ)que constituyen los componentes declarados por (EF)	C, H, O, N, Cl, Na, Mg, P	C, H, O, N, P, Cl, Na	C, H, O, N, P, Cl, Na	C, H, O, N, P, Cl, Na	C, H, O, N, P, Cl, Na, Al	C, H, O, N, P, Cl, Na, Mg	C, H, O, N, P, Cl, Na, Mg
N° muestras analizadas ICP-MS	1	2	4	3	3	1	3
EQ detectados por ICP-MS	Li, B, Na, Mg, Ca, Ti, Cr, Ni, Cu, Ga, As, Se, Rb, Sr, Nb, Mo, Pd, Ba, Hf, Au, Tl, Th	B, Na, Mg, Al, K, Ca, V, Cr, Fe, Ni, Co, Cu, Ga, As, Se, Rb, Sr, Nb, Mo, Pd, Ba, Ce, Tb, Hf, Pt, Au, Tl, Bi, Th, U	Li, B, Na, Mg, Al, P, K, Ti, V, Cr, Mn, Ni, Co, Cu, Zn, Ga, As, Se, Rb, Sr, Nb, Mo, Ru, Rh, Pd, Ba, La, Ce, Pr, Sm, Eu, Tb, Gb, Dy, Er, Hf, W, Pt, Pb, U	B, Na, Mg, Al, P, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Se, Rb, Sr, Y, Zr, Nb, Mo, Ru, Pd, Ag, Cd, Sn, Sb, Ba, La, Ce, Pr, Nd, Tb, Dy, Ho, Yb, Hf, W, Au, Hg, Tl, Pb, Th, U	Li, B, Na, Mg, Al, P, Ca, Ti, V, Cr, Fe, Co, Ni, Cu, Ga, As, Se, Sr, Y, Nd, Mo, Ru, Pd, Sn, Sb, Te, Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Yb, Hf, W, Pt, Au, U	B, Na, Mg, Ca, V, Cr, Ni, Cu, Zn, Ga, As, Rb, Sr, Nb, Pd, Ba, Ce, Gd, Hf, Au, Th	Li, B, Na, Mg, Al, P, K, Ca, Ti, V, Cr, Co, Ni, Cu, Zn, Ga, As, Se, Rb, Sr, Nb, Mo, Ru, Pd, Cd, Sn, Ba, Ce, Nd, Gd, Tb, Ho, Yb, Hf, Pt, Au, Tl, Pb, Th
Total EQ no declarados por ICP-MS	20	29	40	46	41	19	36

Empresas Farmaceúticas (EF)	Cansino Biologics	AstraZeneca (Comirnaty)	Pfizer	Moderna	Sinopharm	Sputnik V I	Sputnik V II
N° muestras por SEM-EDX	1	4	5	5	2	1	0
EQ detectados por SEM-EDX	C, O, F, Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, Fe, Cu, Br	C, N, O, F, Na, Al, Si, S, Cl, Ca, Ti, Cr, Fe, Co, Ni, Cu, Tc, Ag, Sn, Ce, Gd	C, N, O, F, Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, V, Cr, Mn, Fe, Cu, Y, Tm, Bi	C, N, O, Na, Mg, Al, Si, P, S, Cl, K, Ca, Ti, Cr, Fe, Cu, Se, Pd, Cd, Sn, Sb, Cs, Ba, Ce, Pb, Bi	C, O, F, Na, Mg, Al, Si, P, S, Cl, K, Ca, Cu	C, O, Na, Cl	No disponible
EQ detectados por ICP-MS	Li, B, Na, Mg, Ca, Ti, Cr, Ni, Cu, Ga, As, Se, Rb, Sr, Nb, Mo, Pd, Ba, Hf, Au, Tl, Th	B, Na, Mg, Al, K, Ca, V, Cr, Fe, Ni, Co, Cu, Ga, As, Se, Rb, Sr, Nb, Mo, Pd, Ba, Ce, Tb, Hf, Pt, Au, Tl, Bi, Th, U	Li, B, Na, Mg, Al, P, K, Ti, V, Cr, Mn, Ni, Co, Cu, Zn, Ga, As, Se, Rb, Sr, Nb, Mo, Ru, Rh, Pd, Ba, La, Ce, Pr, Sm, Eu, Tb, Gb, Dy, Er, Hf, W, Pt, Pb, U	B, Na, Mg, Al, P, K, Ca, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, As, Se, Rb, Sr, Y, Zr, Nb, Mo, Ru, Pd, Ag, Cd, Sn, Sb, Ba, La, Ce, Pr, Nd, Tb, Dy, Ho, Yb, Hf, W, Au, Hg, Tl, Pb, Th, U	Li, B, Na, Mg, Al, P, Ca, Ti, V, Cr, Fe, Co, Ni, Cu, Ga, As, Se, Sr, Y, Nd, Mo, Ru, Pd, Sn, Sb, Te, Ba, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Yb, Hf, W, Pt, Au, U	B, Na, Mg, Ca, V, Cr, Ni, Cu, Zn, Ga, As, Rb, Sr, Nb, Pd, Ba, Ce, Gd, Hf, Au, Th	Li, B, Na, Mg, Al, P, K, Ca, Ti, V, Cr, Co, Ni, Cu, Zn, Ga, As, Se, Rb, Sr, Nb, Mo, Ru, Pd, Cd, Sn, Ba, Ce, Nd, Gd, Tb, Ho, Yb, Hf, Pt, Au, Tl, Pb, Th
Total EQ no declarados por SEM-EDX	10	17	15	20	7	0	---
Total EQ no declarados por ICP-MS Y SEMEDX	**27**	**37**	**47**	**51**	**45**	**19**	**36**

4.3 Vaccine Quality Control.

It is worth noting that there is a large gap in the quality control of biological products by the national regulatory bodies of each country. This situation is even more pressing and worrying if we understand the accelerated progress observed in cutting-edge biotechnological developments, focused on therapies with alternative strategies and characterized by a marked predominance of the biological component, the complexity of which requires a more developed and conscientious legislative and regulatory framework to guarantee the safety of people who choose to use these therapies.

The National Regulatory Authority of Argentina (INAME-ANMAT), like its peers in the rest of the world, is not exempt from this delicate situation. A clear example of this has been the disorganized and inefficient regulatory framework for quality control of "COVID-19 vaccines" that were promoted as effective and safe, despite being experimental products. Precisely these products based on technologies with a high biological component require an appropriate regulatory framework, certainly more complex and advanced than the current one. An example of the problem exposed can be seen in the basic recommendations of the United States Pharmacopeia, USP. They detail how quality control should be carried out in vaccines containing nucleic acids, describing the amplification procedures for the analysis of DNA and RNA, both qualitative and quantitative. However, no country in the world has implemented this series of analyses that would allow for the examination and control of whether what was being administered to human beings was in accordance with what was declared by pharmaceutical laboratories (see USP chapters: Nucleic Acid-Based Techniques: Generalities 1125, Nucleic Acid-Based Techniques: Extraction, Detection, and Sequencing 1126, and Nucleic Acid-Based Techniques: Amplification 1127) (USP 47-NF 42, 2024).

What was and is the basis for this level of trust on the part of health authorities towards large pharmaceutical companies? Knowing that we are dealing with a new technology, never before used, nor tested under rigorous clinical trials on humans, and that it was also developed in record time, without precedent. It is worth clarifying that these times do not correspond to the normal times required for the usual processes of research and development, planning, production, quality control, clinical trials and tests on a controlled and small audience to fundamentally demonstrate the product's safety in relation to people's health and also that the product is really effective for what it was designed for. Such processes can normally take, depending on the complexity of the product, up to a decade or more years of intensive work.

On the other hand, it should have become an even more worrying situation for health authorities around the world when a progressive increase in the post-inoculation mortality rate of COVID-19 vaccines began to be recorded, which in turn correlates perfectly with the increasing number of doses inoculated in people around the world (Garner, 2022; Rancourt et al., 2023). These events were also accompanied by the appearance of sudden deaths and subjects who, after being inoculated, began to develop magnetic activity in their own bodies (Lee et al., 2022; Santiago and Oller, 2023).

For all these reasons, plus the extreme events observed in the health of millions of people after being inoculated with COVID-19 vaccines around the planet, it is still warranted to carry out the appropriate quality controls for these products. Addressing these delicate events requires immediate attention, but this has been delayed or undermined due to the carelessness and negligence of the responsible authorities, even more so when one considers that many scientists around the world have been permanently and insistently warning of these worrying situations to the different public bodies linked to health, to the legislative, executive and judicial powers, as well as to society in general in each country.

The WHO manual "Training Manual: Licensing, Batch Release and Laboratory Availability - Vaccines and Biological Products" (Chaloner-Larsson, 2003) reveals serious conflicts of interest between the different parties involved in this regulatory framework. This is the manual on which INAME-ANMAT relies to respond to requests for public information on vaccines. At the same time, these policies interfere with the adequate and honest scientific development that is ultimately subject to the political and economic needs and arbitrariness of sectors of global influence and not to the health needs of people, as demonstrated in this particular case, the problematic situation of "COVID-19 vaccines" and in general, other types of vaccines that have been causing serious health problems in the general population (Duesberg, 1996; Humphries, 2015; McBean, 1957). Although the WHO is not part of our nations, it is the one that recommends, trains, regulates, approves and inspects everything related to

"vaccines". Everything is in a perfect circle where the

WHO is positioned above countries in health policies. To corroborate this we can quote two exemplary phrases from this manual:

- "*Quality assurance is particularly difficult for vaccines and other biological products, because the quality of these products cannot be fully determined by controls on the product in the final packaging.*"

This is a fallacy. The quality of any pharmaceutical or biotechnological product, including vaccines, can be determined with the appropriate procedures and techniques taking into account the product specifications. On the other hand, their manufacture requires rigorous documentation with the details of the materials and processes involved (Batch Record), files that can be used to determine causes in case a product or batch is defective or has a quality claim.

- *" To ensure that vaccines are of good quality, NRAs may identify and officially recognize the regulatory authorities of countries that sell vaccines to UN agencies, on the understanding that WHO has conducted an assessment of the regulatory functions and found them to be fully satisfactory.*"

These are measures that lack common sense, are short-sighted and insufficient, and are not necessarily aligned with the idiosyncrasies and culture of each country. On the other hand, taking into account the almost universal use of many of these products by the entire population, the measures of each national regulatory body with jurisdiction in the area in question should be extremely cautious and based on rational and independent strategies that respond only to genuine national interests based on the sovereignty, well-being, respect and peaceful development of each people. Otherwise, the folly of not considering fundamental aspects such as the possibility of defects in the manufacture of these mass-applied products or the fact that they are based on an erroneous or biased scientific conception, or not considering failures or absences in the identification of problematic elements or aspects of any kind related to these products, which have not been identified at the time of their application, just to list some basic points, could produce a widespread catastrophe at the health, social, economic, etc. level. affecting a large part of the population and the structure of a country, the consequences of which would require significant economic resources and long periods to achieve a satisfactory recovery.

The manual also makes it clear: *" The World Health Organization does not guarantee that the information contained in this publication is complete and accurate. The Organization cannot be held liable for any damage caused by the use of the data."* How then can the NRAs obey an organization that imposes standards, but at the same time does not take responsibility for what it imposes and recommends?

Recently, promoters of the massive use of vaccines (Plotkin, 2024) had to acknowledge at least some of the negative aspects such as the lack of post-authorization studies to fully characterize the safety profile of a new vaccine, since they claim that pre-authorization clinical trials have limited sample sizes, follow-up durations, and population heterogeneity. Although this problematic situation produced by the COVID-19 vaccines is already given and widespread, even so, and despite the flagrant negligence by the parties involved in the management of this crisis of health damage produced by these products in the experimental phase, it is more than necessary to invest economic funds directed both to exhaustive studies on the content of these injectables as well as to address the damage caused to the health of the population and never again use injectable toxic substances in humans.

4.4 New medical technologies: relationships with the foreign elements found.

It could be said with certainty that the technological and scientific applications of lanthanides have marked a milestone in the last two decades and that during the coming years their new uses will have a notable impact on transportation, energy generation and computing, among others (Echeverry and Parra, 2019).

In addition to the analysis of the composition, researchers from different parts of the world have been conducting studies on samples of vaccines against COVID-19 and observing the phenomenon of self-assembly of microparticles with orthogonal morphology (Delgado, 2022, Nixon 2023, Lee and Broudy, 2024, Zelada, 2024). It is important to highlight this phenomenon, as well as that of the magnetization of people post-inoculation. Researchers from Korea and Japan (Lee and Broudy, 2024) monitored the evolution over time of samples from Pfizer, Moderna, AstraZeneca and Novavax using stereomicroscopy, incubating the samples under different conditions for more than 600 days and observing them over time at a microscopic level, all carried out under sterile conditions. The fact of constantly renewing the incubation media, and not allowing the samples to dry,Together with the use of

sterile distilled water and physiological solution as media, which made it easier to exclude effects such as contamination by biological agents or the formation of crystals of organic or inorganic salts (as a consequence of saturation of the medium), it was essential to determine conclusively and in real time the self-assembly process, which gives rise to particles with atypical structures, truly incredible. Which not only confirms the same findings by other researchers, but also merits a deep characterization of the particular composition and function of each microstructure present in the content or formed from the nanoparticles.

These studies, added to others, and those carried out in this work through ICP-MS analysis (Table 10), demonstrate that the content of the vials of the mentioned brands, analyzed by different independent researchers from all over the world is not what was declared by the manufacturers. On the contrary, what has been discovered is unprecedented in recent human history, not only in the field of pharmacology and medicine, but also in regulatory processes regarding quality control. Surprisingly and unexpectedly, chemical elements were discovered that are completely unrelated to what was declared by the manufacturers, never before used in humans in medical and/or preventive treatments of any kind, nor do they have any relation to natural biological processes, thus evidencing the incompatibility of this novel and covert technology, which has clearly been shown to be nanotechnology with purposes other than those described, and which also violates the legitimate and inalienable process of free will inherent to every human being, since the information provided to the population is erroneous and misleading, therefore preventing the correct exercise of the right to informed consent of individuals.

The increasing presence of nanotechnology-based products in almost all spheres of science, especially in pharmaceuticals, has once again demonstrated the vital importance of nanomaterials in today's world. However, it has also raised concerns regarding their associated quality, safety, efficacy, and toxicity issues among the public and scientific communities (Mahamuni and Dhanavade, 2023). Most of the available NMc (nanomedicines) function by interacting at the biomolecular level with cellular components and genetic material, thereby directly and indirectly influencing genomic function (Ali et al., 2023). This could have positive beneficial therapeutic effects as well as negative effects, such as genotoxicity and genetic mutations, which could prove lethal and fatal to humans. Nowadays, there is a novel concept called "nanoarchitecture," in which self-assembly processes involve a wide range of materials and applications (Devaraj et al., 2021); Among them, transmembrane channels, peptide conjugates and vesicles, drug delivery, cell culture, supramolecular differentiation, molecular recognition, optics and energy storage can be developed (Ariga et al., 2019). To develop these materials, graphene oxide functionalized with chemical elements such as Palladium, Nickel, Tin, Gold, Cobalt and Copper is often used (Hejaki et al., 2021), which are present in more than 40% of the "vaccine" samples analyzed in this work (Table 9). Likewise, other chemical elements are used for self-assembling materials such as Selenium, Cadmium, Zinc, Manganese, Platinum and Titanium (Hejaki et al., 2021), present in the samples analyzed between 3-40% (Table 9).

Observing the results obtained in COVID-19 vaccines, the presence of lanthanides, the presence of fluorescence in particles, the magnetization phenomenon (mainly in the head and neck area), the conditions at the neuronal level, the self-assembly of nanoparticles, we review the state of the art in terms of neuromodulation-nanoparticles-lanthanides-fluorescence, for which we describe advances in optogenetics, upconversion and quantum dots (QD), in an attempt to understand the presence of these components and the phenomena they cause in the human body.

Among a wide variety of nanomaterials, colloidal quantum dots (QDs) provide unique optoelectronic features for neural interfaces (Hu et al., 2024). Developments in nanoengineering have promised the use of QDs for neuronal control (Karatum 2022). There are many proposed therapies aimed at treating neurological diseases that would use QDs, but the mechanisms of neurotoxicity induced by QDs must first be taken into account. There are specific non-neurological mechanisms, such as oxidative stress, release of heavy metal ions, cell apoptosis, mitochondrial dysfunction, inflammation, autophagy, ferroptosis, pyroptosis, genomic instability, and specific neurological mechanisms of action, such as the intervention in GABA metabolic pathways mediated by neurotransmitter receptors (Hu et al., 2024). This has been determined by evaluating the toxicity of different types of QDs (CdSe, CdTe, MoS2, graphene QDs, etc.) at different doses (10-100 ppm, 1-25 nM, etc.) in different cell cultures (BV2,

U87, U373, U251, etc.).

In recent years, up-conversion nanoparticles (UCNP) have been developed. These are nanocrystals doped with lanthanide ions (Dy^{3+}, Er^{3+}, Eu^{3+}, Gd^{3+}, Ho^{3+}, Lu^{3+}, Sm^{3+}, Tb^{3+}, Tm^{3+}, Y^{3+}, Yb^{3+}), which are excitable by infrared light and are used in optogenetics to activate or deactivate light-sensitive membrane proteins present in neurons, such as opsins and rhodopsins, the whole set corresponding to a neuromodulation mechanism (Yi, et al., 2021; Chen, et al., 2016). Lanthanide-doped $NaGdF_4$, $NaYF_4$, $NaErF_4$ UCNPs were tested on different neuronal populations for optogenetic modulation (Liu, et al, 2021). It was determined that Yb^{3+}, Er^{3+}, Tm^{3+}, and Ho^{3+}-doped NaYF UCNPs can be taken up by neurons via clathrin- and caveolae-mediated endocytosis (Zajdel, 2023).

5.CONCLUSIONS

The results shown in this work raise serious doubts, at best, about the quality control processes and manufacturing protocols of the injectables used to massively inoculate the world's population since late 2020 and early 2021. In addition, much of the variety and quantity of elements found are not biocompatible with normal biological and physiological processes, nor are they suitable for maintaining the homeostasis characteristic of a healthy biological organism, that is, the minimum level of health for life to take place normally. Therefore, it is not difficult to understand, in light of these results, the diversity and severity of the adverse effects associated with these inocula from different manufacturers. On the other hand, it is worth noting that, in studies of mortality rates in relation to these vaccines, the “COVID-19 vaccines” in 17 countries in the southern hemisphere, no evidence was found, until the date on which the study was carried out, of any beneficial effect of the “COVID-19 vaccines” on human health (Rancourt, et al., 2023).

Based on the identification and ranges of the quantities of the elements discovered, and on the physical and chemical characteristics of the contents of the injectables studied, it is of utmost importance to highlight the great similarity that exists between the products of the different brands. In other words, there would apparently be no differences between batches of the same brand, nor between the different brands analyzed beyond the usual and expected statistical variations. As detailed in this work, the differences observed in the presence of elements in the different brands are due rather to a sampling effect and this in turn, to the structure of the contents of the vials rather than to differences due to processes specific and exclusive to each brand's manufacturing or to differences between batches due to normal statistical variations in the production process of the same. This aspect is striking despite the small size and number of samples analyzed in this exploratory study. It is very likely that the analysis of a larger number of samples and batches will confirm these trends. From the findings of this work, it is inferred that the great diversity of pathologies observed in the inoculated population is not due to the effect caused by some fortuitous or isolated problem in the manufacturing or distribution process of a particular batch or brand, but rather is caused by a common technology and composition of all these products, harmful to human beings. Ultimately, the situation that humanity is going through is extremely serious because there is an identifiable common cause that includes all injectables from all batches of all brands, this means that all inoculated people have been affected to a greater or lesser degree. Therefore, the particular characteristics of each individual at the time of being inoculated and afterwards, better explain the diversity and complexity of the symptoms and pathologies observed, consequences of the massive application of these inoculations in the world population. Among these characteristics, some that seem relevant can be listed in a list that definitely does not claim to be exhaustive or definitive. This list could include variables such as the particular health condition of each individual, their unique genetic makeup, their epigenetics, the level of pollution in the place where they live, their eating habits, sedentary lifestyle or physical activity, the degree of intoxication of their body, age, psychological habits and behaviors, exposure to non-ionizing radio frequencies, etc. Based on all of the above , the most rational and appropriate action to be taken for the health of the general population is to urgently stop the use of all of these injectables, not just that of a particular batch or brand. It is also essential to expand and further delve into this type of study and other complementary studies with the aim of deepening knowledge of the composition and structure of these injectables to understand the mechanisms that cause these pathologies and thus be able to access the development of palliative therapies.

Finally, it is extremely urgent that the governments of the world carry out a relevant investigation into these

tproducts, as is usually done in response to quality complaints (pharmacovigilance). Justice worldwide must immediately act against the WHO and its derivative agencies, pharmaceutical companies, and governments, in accordance with the seriousness of the situation, given the increase in the global mortality rate, the adverse effects recorded, and the clear demonstration that these products were not developed with the purpose of granting immunity. The corresponding complaints are being filed while awaiting the urgent action of the Justice.

We call for awareness so that human rights are never again trampled on in pursuit of economic interests that seek to control the world population and abolish the freedom of humanity.

6.ACKNOWLEDGEMENTS

These studies were funded by contributions from citizens interested in learning the truth about the content of the "COVID-19 vaccines."

7.REFERENCES:

1.AFP (2022). Uruguayan Justice asks the government and Pfizer to clarify components of anticovid vaccines. France 24. https://www.france24.com/es/minuto-a-minuto/20220703-justiciauruguaya-pide-al-gobierno-y-a-pfizer-aclarar-componentes-de-vacunas-anticovid

2. Andersen, M. (2021) El espectro Raman 1450 cm^{-1}en los viales de las vacunas del coronavirus. Una revisión de la literatura científica. https://archive.org/details/art-2021-11-05-el-espectroraman-1450-en-los-viales-de-las-vacunas-1

3. Ali, F., Neha, K. y Parveen, S. (2023) Current regulatory landscape of nanomaterials and nanomedicines: A global perspective. Journal of Drug Delivery Science and Technology. 104118 https://www.sciencedirect.com/science/article/abs/pii/S1773224722010292

4. Ariga, K., Nishikawa, M., Mori, T., Takeya, J., Shrestha, L.K. y Hill, J.P. (2019) Self-assembly as a key player for materials nanoarchitectonics. Sci Technol Adv Mater. 20(1):51-95.

5. Balaram, V. (2018) Rare earth elements: A review of applications, occurrence, exploration, analysis, recycling, and environmental impact. Geoscience Frontiers. 10:1285-1303. Doi 10.1016/j.gsf.2018.12.005

6. Campra, P. (2021) Graphene oxide detection in aqueous suspension: Observational study in optical and electron microscopy.https://www.docdroid.net/rNgtxyh/microscopia-de-vial-corminatydr-campra-firma-e-1-fusionado-pdf

7. Causas Judiciales, (2024) Denuncias judiciales vinculadas a vacunas contra Covid-19 en Argentina. https://archive.org/details/denuncias-2024_202408

8. Chaloner-Larsson, G. (2003) Manual de entrenamiento: concesión de licencias, liberación de lotes y disponibilidad de laboratorios. Vacunas y Productos Biológicos. Organización Mundial de la Salud. WHO_VB_01.16_spa. https://archive.org/details/who-vb-01.16-spa

9. Chantra S., Chaitanuwong, P., Seresirikachorm, K., Brinks, M., Serirat, O., Chamberlain W. y Ruamviboonsuk P. (2021) Ocular Surface Erosion after Suspected Exposure to Evaporated COVID-19 Vaccine. Case Rep Ophthalmol 2021; 12:944–951. DOI: 10.1159/000520500

10. Chen, C., Li, C. y Shi, Z. (2016) Current Advances in Lanthanide-Doped Upconversion Nanostructures for Detection and Bioapplication. Adv. Sci. 3, 1600029, DOI: 10.1002/advs.201600029

11. Clayton, I. (2022) Microraman qualitative evaluation of inclusions in Moderna, Astrazeneca and Pfizer.Unit-England (Reino Unido). http://ukcitizen2021.org/Case_Briefing_Document_and_lab_report_Ref_AUC_101_Report%20.pdf

12. Delgado, M.R. (2022). Identification of possible micro-technology and artificial patterns in Pfizer vaccine using optical microscopy. https://www.docdroid.net/n36IOrK/identificacion-demicrotecnologia-y-patrones-artificiales-en-vacuna-pdf

13. Devaraj, V., Lee, J.-M., Kim, Y.-J., Jeong, H. y Oh, J.W. (2021) Engineering Efficient Self-Assembled Plasmonic Nanostructures by Configuring Metallic Nanoparticle's Morphology. Int. J. Mol. Sci. 22: 10595.

14. Diblasi, L. y Sangorrín, M.P. (2023) Análisis por Microscopia de Fuerza Atómica (AFM) de una muestra de "vacunas COVID-19" de Pfizer. https://archive.org/details/analisis-pormicroscopia-de-fuerza-atomica_202409

15. Duesberg, P. (1996) Inventing the AIDS Virus. Gateway Books, First Edition January 1

16. Dulcey-Sarmiento, L.A., Caltagirone-Micelli, R., Ruge-Serrano, A.L., Cantillo-Reines M.D., Hernández-Anaya, P.N. y Henao-Niño, C.O. (2022) Thrombocytopenic purpura following COVID-19 vaccination. Acta Médica Colombiana Vol. 47 N°1. DOI: https://doi.org/10.36104/amc.2022.2268

17. Echeverri, L.F y Parra, B.J. (2019) Los lantánidos: ni tierras ni raras. Rev. Acad. Colomb. Cienc. Ex. Fis. Nat. 43:291-296

18. Global, R.C.A. (2022) PfizerGate: Official Government Reports prove Hundreds of Thousands of People Are Dying Every Single Week Due to COVID-19 Vaccination.https://www.globalresearch.ca/pfizergate-official-government-reports-provehundreds-thousands-people-dying-every-single-week-due-covid-19-vaccination/5790262

19. Garner, J. (2022) Health versus Disorder, Disease, and Death: Unvaccinated Persons Are Incommensurably Healthier than Vaccinated. International Journal of Vaccine Theory, Practice, and Research 2(2): 670 https://doi.org/10.56098/ijvtpr.v2i2

20. Gatti, A. y Montanari, S. (2017) New quality-control investigations on vaccines: micro- and nanocontamination. Int J Vaccines Vaccin. 2017;4(1):7–14.
21. Hagima, G. (2023) Electron microscopy investigation of covid vaccines (SEM , EDX) Comirnaty Omicron and Moderna. https://archive.org/details/hagima-2024-sem-edx-citas-covid-vaccinesenglish
22. Hu, Y., Wang, X., Niu, Y., He, K. y Tang, M. (2024) Application of Quantum Dots in Brain Diseases and Its Neurotoxic Mechanism, Nano Scale Advance (15) DOI: https://doi.org/10.1039/D4NA00028E
23. Hejazi, M., Tong, W., Ibbotson, M.R., Prawer, S. y Garrett, D.J. (2021) Advances in Carbon-Based Microfiber Electrodes for Neural Interfacing. Front. Neurosci. 15:658703. doi: 10.3389/fnins.2021.658703
24. Hogan, M.C. (2010) Heavy metal. Encyclopedia of Earth. National Council for Science and the Environment. eds. E. Monosson & C. Cleveland. Washington, D.C
25. Hu Y., Tang M., Wang X., He K. y Niu Y. (2024) , Nanoscale Adv., DOI: 0.1039/D4NA00028
26. Hulscher, N., Alexander, P. E., Amerling, R. A. , Gessling, H., Hodkinson, R., Makis W., Harvey A. Risch H., Trozzi, M. y McCullough P. (2024) A systematic review of autopsy findings in deaths after covid-19 vaccination. Forensic Science International.
DOI:10.1016/j.forsciint.2024.112115
27. Humphries, S. y Bystrianyk, R. (2015) Desvaneciendo ilusiones. Las enfermedades, las vacunas y la historia olvidada. Ediciones OCTAEDRO, S.L. Barcelona. Primera edición: febrero de 2015
28. ICH (2022) Conferencia Internacional sobre Armonización de Requisitos Técnicos para el Registro de Productos Farmacéuticos para Uso Humano. GUIDELINE FOR ELEMENTAL IMPURITIES Q3D (R2) https://archive.org/details/q-3-d-r-2-guideline-step-4-2022-0308
29. Karatum, O., Nur, H., Guncem, K., Eren, O., Sahin, A. y Nizamoglu, S. (2022) Electrical Stimulation of Neurons with Quantum Dots via Near-Infrared LightClick to copy article link. ACS Nano,
16, 8233−8243. https://pubs.acs.org/doi/10.1021/acsnano.2c01989
30. Kiodo (2021) https://www.japantimes.co.jp/news/2021/09/15/national/contaminants -pfizer-tokyoosaka/
31. La Nación (2024) https://www.lanacion.com.ar/sociedad/al-pais-llegaron-24-millones-de-dosis-pormotivos-comerciales-astrazeneca-deja-de-vender-en-europa-nid06052024/
32. La voz (2024) La mujer que demandó a AstraZeneca por $ 100 millones pidió conocer efectos adversos en el país. https://archive.org/details/lavoz-2024-la-mujer-que-demando-a-astra-zeneca-por100-millones-pidio-conocer-ef
33. Lazarus R. (2011) Electronic Support for Public Health–Vaccine Adverse Event Reporting System (ESP:VAERS) https://es.scribd.com/document/434088983/Lazarus-Final-Report-2011
34. Lee, M. Y. y Broudy, D. (2024) Real time self-assembly of stereo microscopically visible artificial constructions in incubated specimens of RNAm products mainly from Pfizer and Moderna: a comprehensive longitudinal study. International Journal of Vaccine Theory, Practice, and Research 3: 1180- 1244 https://doi.org/10.56098/586k0043
35. Lee, Y.M., Park, S. y Jeon, K. (2022) Foreign materials in blood samples of recipients of COVID-19 vaccines. International Journal of Vaccine Theory Practice and Research, 2(1), 249-265. DOI:10.56098/ijvtpr.v2i1.37
36. Liu, X., Chen, H., Wang, Y. et al. (2021) Near-infrared manipulation of multiple neuronal populations via trichromatic upconversion. Nat Commun 12, 5662 https://doi.org/10.1038/s41467-02125993-7
37. Mahamuni-Badiger, P. y Dhanavade, M.J. (2023) Challenges and toxicity assessment of inorganic nanomaterials in biomedical applications: Current status and future roadmaps. Journal of Drug Delivery Science and Technology 87: 104806 https://www.sciencedirect.com/science/article/abs/pii/S1773224723006585?via%3Dihub
38. Maldonado, M.E. (2022) NO-2022-59683154-APN-INAME#ANMAT, Referencia: Respuesta A EX2022-50699694-APN-ANMAT#MS de Matías Gómez (director Nacional), Solicitante: María Eugenia Maldonado. https://archive.org/details/maldonado-2022-respuesta-anmatcomposicion
39. Martínez, S. B., Farjas, E.M. y Lázaro, C.P. (2022) Worsening of immune thrombocytopenic purpura in SARS-CoV-2 vaccinated patients. Medicina Clínica 158, pág. 496–500. https://doi.org/10.1016/j.medcli.2021.09.011
40. Martínez, M., Fano, G., Witt, M. et al. (2021) Microscopía electrónica de barrido (SEM) y análisis de los componentes químicos (EDS). Estudio realizado en la Universidad Nacional de La Plata por el Club del Tango. https://archive.org/details/eventos-alarmantes-en-inoculados

41. McBean, E. (1957) The poissoned needle, Suppressed Facts About Vaccination. Mokelumne Hill Pr. Mead, M. N., Seneff, S., Wolfinger, R., Rose, J., Denhaerynck, K., Kirsch, S., y McCullough, P. A. (2024) COVID-19 modified mRNA "vaccines", Part 1: Lessons learned from clinical trials, mass vaccination, and the biopharmaceutical complex. International Journal of Vaccine Theory, Practice, and Research, 3 (1), 1112 11
42. Monteverde, M., Femia, A. y Lafferriere, L. (2022) Viales al Microscopio.
https://awakenindiamovement.com/wpcontent/uploads/2022/02/ANALISIS_ARGENTINO_
DE_LOS_VIALES_ASTRAZENECA_PFIZER_SINOPHARM_compressed.pdf
43.Nagase, D. (2022) Dr. Nagase reviews Images from COVID Vaccines, shows no 'Elements of Life.' Western Standard. https://expose-news.com/2022/05/27/carbon-nanotech-and-thulium-in covid-injections/
44.Nixon, D. (2023) Estudios de microscopía de campo oscuro de la tecnología corporal en personas vacunadas contra COVID-19. https://drdavidnixon.com/
45. Nyström, S. y Hammarström, P. (2022) Amyloidogenesis of SARS-CoV-2 spike protein. Journal of the American Chemical Society, 144(20), 8945–8950.
46. Open Vaers, (2024) VAERS COVID Vaccine Adverse Event Reports.https://openvaers.com/coviddata
47. Page D., Zhu N., Sawler D., Sun H-W., Turley E., Pai M. y Wu C. (2021) Vaccine-induced immune thrombotic thrombocytopenia presenting with normal platelet count. Res Pract Thromb Haemost. 5:12596.
48. Palmer, M. y Bhakdi, S. (2022) Daño vascular y de órganos inducido por vacunas de ARNm: Prueba irrefutable de causalidad. Publicación independiente.2022.
49. Perez, J. C., Moret Chalmin, C. y Montagnier, L. (2023) Emergence of a new Creutzfeldt Jakob Disease: 26 cases of the human version of Mad Cow Disease, a few days after a COVID 19 injection. International Journal of Vaccine Theory, Practice, and Research, 3 , 727 70.
50. Plotkin, S.A., Salmon, D.A., Orenstein, W.A. y Chen, R.T. (2024) Funding Postauthorization VaccineSafety Science. N Engl J Med 391:102-105. DOI: 10.1056/NEJMp2402379
51. Rancourt, D.G., Baudin, M., Hickey, J. y Mercier, J. (2023) COVID-19 vaccine-associated mortality in the Southern Hemisphere. CORRELATION Research in the Public Interest.
https://correlation-canada.org/covid-19-vaccine-associated-mortality-in-the-SouthernHemisphere
52. Retzlaff, K. (2022) Grupo de Trabajo Alemán para el Análisis de las Vacunas COVID-19. https://guerrillatranscripts.substack.com/p/german-working-group-for-covid-vaccine
53. Sangorrín, M.P. y Diblasi, L. (2022a) Análisis de viales de las llamadas "vacunas" contra la enfermedad COVID-19, https://www.academia.edu/93566189/An%C3%A1lisis_del_contenido_de_viales_de_vacunas
_COVID19_en_microscopio_de_fluorescencia?sm=b
54. Sangorrín, M.P. y Diblasi, L. (2022b) Análisis de viales de las llamadas "vacunas" contra la enfermedad COVID-19, mediante microscopía electrónica de barrido acoplada a EDS. https://www.academia.edu/93566918/An%C3%A1lisis_del_contenido_de_vacunas_COVID_
por_microscopio_electr%C3%B3nico_SEM_EDX_?sm=b
55. Santiago, D. y Oller, J.W. (2023) Abnormal clots and all cause mortality during the pandemic experiment: five doses of COVID-19 vaccine are evidently lethal to nearly all Medicare participants. International Journal of Vaccine Theory, Practice, and Research , 3 , 847 90.
56. Sarmiento, L.A., Raimondo C., Serrano, A. L., Cantillo-Reines, M.D., Hernández-Anaya, P. y Ornandy, C. (2022) Thrombocytopenic purpura following COVID-19 , Acta Med Colomb 2022; 47. DOI: https://doi.org/10.36104/amc.2022.2268
57. Schwab C., Domke L. M., Hartmann L., Stenzinger, A, Longerich, T. y Schirmacher P. (2022) Autopsy-based histopathological characterization of myocarditis after anti-SARS-CoV-2vaccination. Clinical Research in Cardiology.
58. Segalla, G. (2024) Adjuvant activity and toxicological risks of lipid nanoparticles contained in the COVID-19 mRNA Vaccines. International Journal of Vaccine Theory, Practice, and Research 3(2) 1085 https://doi.org/10.56098/z1ydjm29
59. Servin de la Mora Godinez, L.F. (2023a) Desenmascarando el fraude de la pandemia COVID-19 en México y el mundo: Primer Reporte Científico Oficial COMCIENCIA (Spanish Edition)- Pasta blanda- Print, 24 enero 2023.
60. Servin de la Mora Godinez, L.F. (2023b) Weaponizing the medical establishment fifth generation warfare- Pasta Blanda-

Print, 25 Agosto 2023.
61. Simpson, C. R., Shi, T., Vasileiou, E., Katikireddi, S. V., et al., (2021) First-dose ChAdOx1 and BNT162b2 COVID-19 vaccines and thrombocytopenic, thromboembolic and hemorrhagic events in Scotland. Nature Medicine, vol. 27, pág 1290-1297. 41. McBean, E. (1957) The poissoned needle, Suppressed Facts About Vaccination. Mokelumne Hill Pr. Mead, M. N., Seneff, S., Wolfinger, R., Rose, J., Denhaerynck, K., Kirsch, S., y McCullough, P. A. (2024) COVID-19 modified mRNA "vaccines", Part 1: Lessons learned from clinical trials, mass vaccination, and the biopharmaceutical complex. International Journal of Vaccine Theory, Practice, and Research, 3 (1), 1112 11
42. Monteverde, M., Femia, A. y Lafferriere, L. (2022) Viales al Microscopio.
https://awakenindiamovement.com/wpcontent/uploads/2022/02/ANALISIS_ARGENTINO_
DE_LOS_VIALES_ASTRAZENECA_PFIZER_SINOPHARM_compressed.pdf
43.Nagase, D. (2022) Dr. Nagase reviews Images from COVID Vaccines, shows no 'Elements of Life.' Western Standard. https://expose-news.com/2022/05/27/carbon-nanotech-and-thulium-in covid-injections/
44.Nixon, D. (2023) Estudios de microscopía de campo oscuro de la tecnología corporal en personas vacunadas contra COVID-19. https://drdavidnixon.com/
45. Nyström, S. y Hammarström, P. (2022) Amyloidogenesis of SARS-CoV-2 spike protein. Journal of the American Chemical Society, 144(20), 8945–8950.
46. Open Vaers, (2024) VAERS COVID Vaccine Adverse Event Reports.https://openvaers.com/coviddata
47. Page D., Zhu N., Sawler D., Sun H-W., Turley E., Pai M. y Wu C. (2021) Vaccine-induced immune thrombotic thrombocytopenia presenting with normal platelet count. Res Pract Thromb Haemost. 5:12596.
48. Palmer, M. y Bhakdi, S. (2022) Daño vascular y de órganos inducido por vacunas de ARNm: Prueba irrefutable de causalidad. Publicación independiente.2022.
49. Perez, J. C., Moret Chalmin, C. y Montagnier, L. (2023) Emergence of a new Creutzfeldt Jakob Disease: 26 cases of the human version of Mad Cow Disease, a few days after a COVID 19 injection. International Journal of Vaccine Theory, Practice, and Research, 3 , 727 70.
50. Plotkin, S.A., Salmon, D.A., Orenstein, W.A. y Chen, R.T. (2024) Funding Postauthorization VaccineSafety Science. N Engl J Med 391:102-105. DOI: 10.1056/NEJMp2402379
51. Rancourt, D.G., Baudin, M., Hickey, J. y Mercier, J. (2023) COVID-19 vaccine-associated mortality in the Southern Hemisphere. CORRELATION Research in the Public Interest.
https://correlation-canada.org/covid-19-vaccine-associated-mortality-in-the-SouthernHemisphere
52. Retzlaff, K. (2022) Grupo de Trabajo Alemán para el Análisis de las Vacunas COVID-19. https://guerrillatranscripts.substack.com/p/german-working-group-for-covid-vaccine
53. Sangorrín, M.P. y Diblasi, L. (2022a) Análisis de viales de las llamadas "vacunas" contra la enfermedad COVID-19, https://www.academia.edu/93566189/An%C3%A1lisis_del_contenido_de_viales_de_vacunas
_COVID19_en_microscopio_de_fluorescencia?sm=b
54. Sangorrín, M.P. y Diblasi, L. (2022b) Análisis de viales de las llamadas "vacunas" contra la enfermedad COVID-19, mediante microscopía electrónica de barrido acoplada a EDS. https://www.academia.edu/93566918/An%C3%A1lisis_del_contenido_de_vacunas_COVID_
por_microscopio_electr%C3%B3nico_SEM_EDX_?sm=b
55. Santiago, D. y Oller, J.W. (2023) Abnormal clots and all cause mortality during the pandemic experiment: five doses of COVID-19 vaccine are evidently lethal to nearly all Medicare participants. International Journal of Vaccine Theory, Practice, and Research , 3 , 847 90.
56. Sarmiento, L.A., Raimondo C., Serrano, A. L., Cantillo-Reines, M.D., Hernández-Anaya, P. y Ornandy, C. (2022) Thrombocytopenic purpura following COVID-19 , Acta Med Colomb 2022; 47. DOI: https://doi.org/10.36104/amc.2022.2268
57. Schwab C., Domke L. M., Hartmann L., Stenzinger, A, Longerich, T. y Schirmacher P. (2022) Autopsy-based histopathological characterization of myocarditis after anti-SARS-CoV-2vaccination. Clinical Research in Cardiology.
58. Segalla, G. (2024) Adjuvant activity and toxicological risks of lipid nanoparticles contained in the COVID-19 mRNA Vaccines. International Journal of Vaccine Theory, Practice, and Research 3(2) 1085 https://doi.org/10.56098/z1ydjm29

59. Servin de la Mora Godinez, L.F. (2023a) Desenmascarando el fraude de la pandemia COVID-19 en México y el mundo: Primer Reporte Científico Oficial COMCIENCIA (Spanish Edition)- Pasta blanda- Print, 24 enero 2023.
60. Servin de la Mora Godinez, L.F. (2023b) Weaponizing the medical establishment fifth generation warfare- Pasta Blanda-
62. Swift, R. y O'donnell, C. (2021) Moderna retirará dosis de COVID-19 en Japón después de que se encontraran contaminantes de acero inoxidable https://www.reuters.com/business/healthcarepharmaceuticals/japan-finds-stainless-steel-particles-suspended-doses-moderna-vaccine2021-09-01/
63. USP 47-NF 42 (2024) Capítulos generales 1125, 1126 y 1127, páginas 7744, 7746, 7755.
64. Voncken, J.H.L. (2016). The Rare Earth Elements, Springer Briefs in Earth Sciences, Dordrecht: Springer, 127 p. Doi: 10.1007/978-3-319-26809-5_3.
65. Witkowska, D, Słowik, J. y Chilicka, K. (2021) Heavy Metals and Human Health: Possible Exposure Pathways and the Competition for Protein Binding Sites. Molecules 26(19):6060.doi: 10.3390/molecules26196060. PMID: 34641604; PMCID: PMC8511997.
66. Yi, Z., All, A.H. y Liu, X. (2021) Upconversion Nanoparticle-Mediated Optogenetics, Chapter 44, Springer Nature H. Yawo et al. (eds.), Optogenetics, Advances in Experimental Medicine and Biology 1293, https://doi.org/10.1007/978-981-15-8763-4_44
67. Young, R.O. (2021) Scanning & Transmission Electron Microscopy Reveals Graphene & Parasites in CoV-19 Vaccines https://www.drrobertyoung.com/post/transmission-electron-microscopyreveals-graphene-oxide-in-cov-19-vaccines
68. Young, R.O. (2022) Scanning and Transmission Electron Microscopy Reveals Graphene Oxide in CoV-19 Vaccines. Acta Scientific Medical Sciences 6.8: 98-111 DOI: 10.31080/ASMS.2022.06.1351
69. Zajdel, K.; Janowska, J.; Frontczak-Baniewicz, M.; Sypecka, J. y Sikora, B. (2023) Upconverting Nanoparticles as a New Bio-Imaging Strategy Investigating Intracellular Trafficking of Endogenous Processes in Neural Tissue. Int. J. Mol. Sci. 24, 1122. https://doi.org/10.3390/ijms24021122
70. Zelada, L. (2024) Evidencia de la contaminación de las vacunas, anestésicos, inyectables. Canal de Telegram: Evidencia. T.me/evidencia.