C0r0n@ 2 Inspect

Review and analysis of scientific articles related to experimental techniques and methods used in vaccines against c0r0n@v|rus, evidence, damage, hypotheses, opinions and challenges.

Thursday, November 25, 2021

Pattern identification in c0r0n @ v | rus vaccines: nanorouters

Since graphene oxide was discovered in c0r0n @ v | rus vaccines, all the findings and discoveries made only confirm its presence (Campra, P. 2021). To date, more than reasonable evidence and indications of the existence of carbon nanotubes and nano-octopuses , mesoporous spheres , colloidal nano-robots have also been found ; objects that should not be part of any vaccine and that are not declared among the components of the same. Additionally, other types of objects have been identified and evidenced in images of blood samples, of people vaccinated with the c0r0n @ v | rus vaccines, specifically micro-swimmers , nano-antennas of crystallized graphene and graphene quantum dots , as well. known as GQD.

On this occasion, analyzing one of the images obtained by Dr. Campra , corresponding to a sample of the Pfizer vaccine, see figure 1, it has been discovered, which with great probability, is a nanorouter or part of its circuitry. In the original image, a well-defined drop can be seen in which crystalline structures of a quadrangular or cubic format appear. If you look closely, you can see some marks on these crystals, with a regular pattern, well defined in some cases, but limited by the microscope optics.

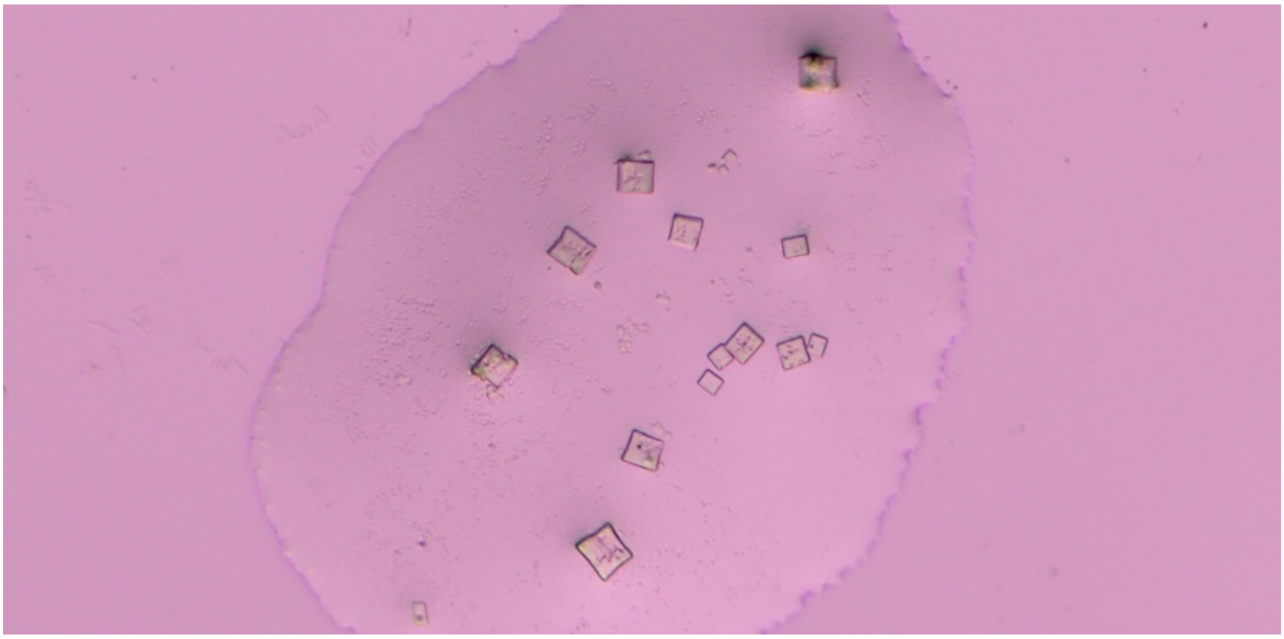


Fig. 1. Crystalline formations that show markings of what appear to be circuits. Among these objects, the circuit of what could be a nanorouter has been discovered. Image of a sample of the Pfizer vaccine, obtained by (Campra, P. 2021)

The finding has been made possible by isolating each quadrangular crystal, applying a process of rasterizing, focusing and delineating the edges of the image, in order to further pronounce the observed marks. Once this process was completed, a rough draft was drawn with the lines and patterns inscribed on the glass, creating a clean outline of what actually looked like a circuit. The fact of finding parallel and perpendicular lines with a distribution far from the fractal patterns was very striking, which allowed us to automatically infer the possibility that it had been a product of manufacture. For this reason, similar patterns were searched in the scientific literature, which had a similar scheme, similar to the circuit that had just been drawn. The search result was almost immediate,since the pattern of a quantum dot nanorouter was found, as shown in figure 2.

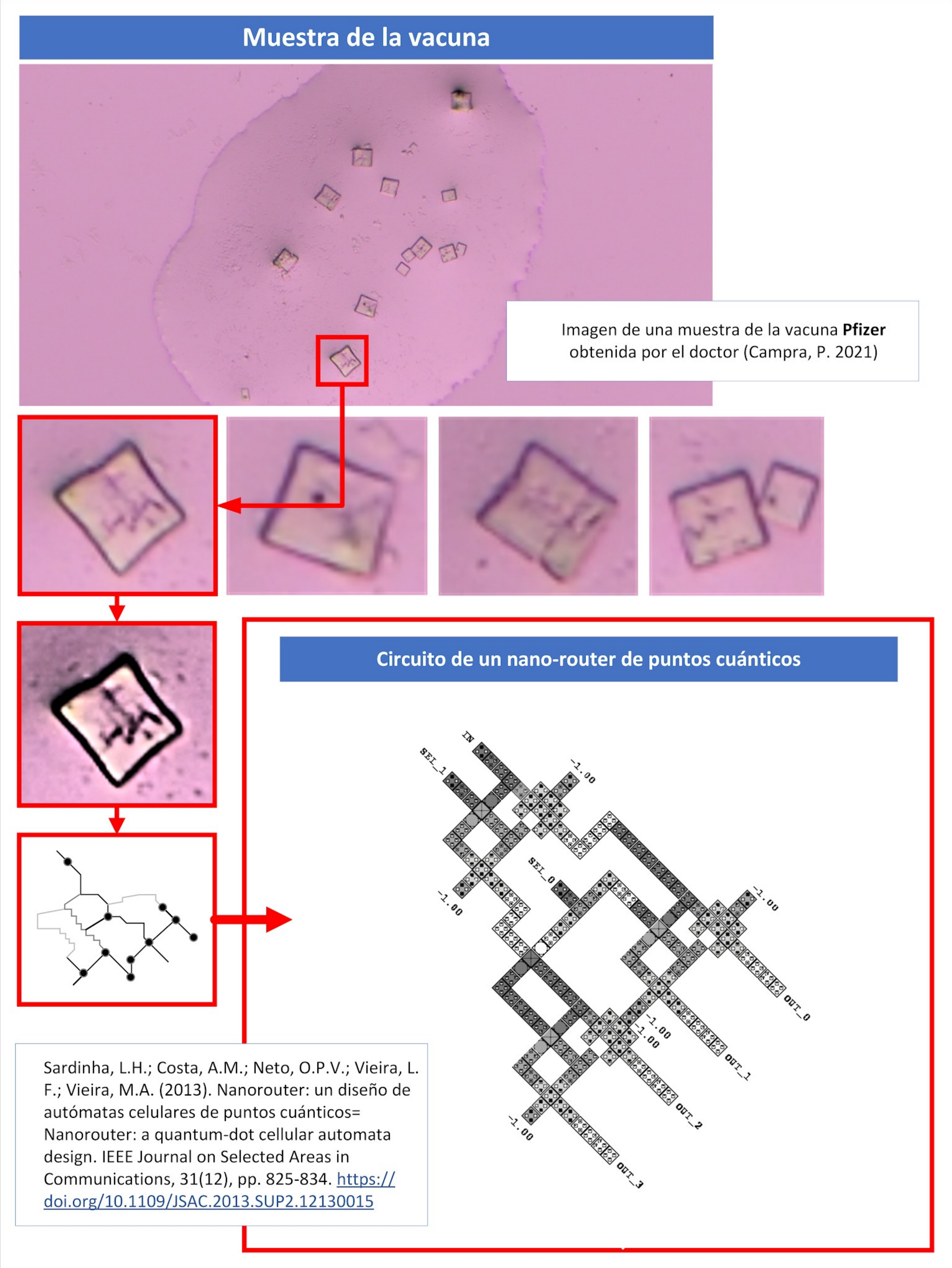


Fig. 2. Possible quantum dot nanorouter observed in a quadrangular crystal, in an image obtained by the doctor (Campra, P. 2021). In the lower right corner, the quantum dot nanorouter circuit published by (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013) is observed. Note the obvious similarity between the sketch, the shape inscribed in the crystal, and the quantum dot circuit.

This discovery is of fundamental relevance, not only to understand the true purpose and components of the c0r0n @ v | rus vaccines, but also to explain the existence of the phenomenon of MAC addresses, visible through the bluetooth of many mobile devices.

Discovery context

Before proceeding to the explanation of the finding, it is convenient to remember the context in which it is framed, in order to ensure its understanding and subsequent deepening.

First of all, it should be borne in mind that graphene and its derivatives, graphene oxide (GO) and carbon nanotubes (CNT), are part of the components of vaccines, according to what has already been stated in this blog. The properties of graphene are exceptional from the physical point of view, but also thermodynamic, electronic, mechanical and magnetic. Its characteristics allow its use as a superconductor, electromagnetic wave absorbing material (microwave EM), emitter, signal receiver, quantum antenna, which makes it possible to create advanced electronics on a nano and micrometric scale. Such is the case, that it is the fundamental nanomaterial for the development of nano-biomedicine (Mitragotri, S.; Anderson, DG; Chen, X.; Chow, EK; Ho, D.; Kabanov, AV; Xu, C. 2015),nano-communication networks (Kumar, MR 2019), new drug delivery therapies (Yu, J.; Zhang, Y.; Yan, J.; Kahkoska, AR; Gu, Z. 2018) and cancer treatments (Huang, G.; Huang, H. 2018)) and the neurological treatment of neurodegenerative diseases (John, AA; Subramanian, AP; Vellayappan, MV; Balaji, A.; Mohandas, H.; Jaganathan, SK 2015). However, all the benefits aside, the scientific literature is very clear regarding the health implications for the human body. It is well known that graphene (G), graphene oxide (GO) and other derivatives such as carbon nanotubes (CNT) are toxic in almost all their forms, causing mutagenesis, cell death (apoptosis), release of free radicals, lung toxicity, bilateral pneumonia, genotoxicity or DNA damage, inflammation, immunosuppression, damage to the nervous system, the circulatory, endocrine, reproductive, and urinary systems, which can cause anaphylactic death and multi-organ dysfunction, see page " *Damage and toxicity of graphene oxide*"and" *Damage and toxicity of carbon-graphene nanotubes* ".

Second, graphene is a radio-modulable nanomaterial, capable of absorbing electromagnetic waves and multiplying radiation, acting as a nano-antenna , or a signal repeater (Chen, Y.; Fu, X.; Liu, L.; Zhang, Y. ; Cao, L.; Yuan, D.; Liu, P. 2019). Exposure to electromagnetic radiation can cause exfoliation of the material in smaller particles (Lu, J.; Yeo, PSE; Gan, CK; Wu, P.; Loh, KP 2011), called graphene quantum dots or GQD (Graphene Quantum Dots), whose physical properties and particularities improve due to its even smaller scale, due to the effect of " Quantum Hall", since they act by amplifying electromagnetic signals (Massicotte, M.; Yu, V.; Whiteway, E.; Vatnik, D.; Hilke, M. 2013 | Zhang, X.; Zhou, Q.; Yuan, M. ; Liao, B.; Wu, X.; Ying, M. 2020), and with it the emission distance, especially in environments such as the human body (Chopra, N.; Phipott, M.; Alomainy, A. ; Abbasi, QH; Qaraqe, K.; Shubair, RM 2016). GQDs can acquire various morphologies, for example hexagonal, triangular, circular or irregular polygon (Tian, P.; Tang, L.; Teng, KS; Lau , SP 2018).

The superconducting and transducing capacity make graphene one of the most suitable materials to create wireless nanocommunication networks for the administration of nanotechnology in the human body . This approach has been intensively worked on by the scientific community, after having found and analyzed the available protocols and specifications , but also the routing systems for data packets that would generate nano-devices and nano-nodes within the body, in a complex of systems called CORONA, whose objective is the effective transmission of signals and data on the network, optimizing energy consumption (to the minimum possible), and reducing likewise, the failures in the transmission of data packets (Bouchedjera, IA; Aliouat, Z.; Louail, L. 2020 | Bouchedjera, IA; Louail, L.; Aliouat, Z.; Harous, S. 2020 | Tsioliaridou, A.; Liaskos , C.; Ioannidis, S.; Pitsillides, A. 2015). In this nanocommunication network, a type of TS-OOK (Time-Spread On-Off Keying) signal is used that allows binary codes of 0 and 1 to be transmitted, through short pulses that involve the activation and deactivation of the signal during very small time intervals of a few femtoseconds (Zhang, R.; Yang, K.; Abbasi, QH; Qaraqe, KA; Alomainy, A.2017 | Vavouris, AK; Dervisi, FD; Papanikolaou, VK; Karagiannidis, GK 2018). Due to the complexity of nanocommunications in the human body, where the nano-nodes of the network are distributed throughout the body, in many cases in motion, due to blood flow, and in others attached to the endothelium to the arterial walls and capillaries or in the tissues of other organs, researchers have required the development of software for the simulation of such conditions , in order to verify and validate the nanocommunication protocols that had been developed (Dhoutaut, D.; Arrabal, T.; Dedu, E. 2018).

On the other hand, the nanocommunications network oriented to the human body (Balghusoon, AO; Mahfoudh, S. 2020), has been carefully designed in its topological aspects, conceiving specialized components in the performance of this task. For example, electromagnetic nanocommunication is made up in its most basic layer by nano-nodes that are devices (presumably made of graphene, carbon nanotubes, GQD, among other objects and materials) that have the ability to interact as nanosensors, piezo-electric actuators , and in any case as nano-antennas that propagate the signals to the rest of the nano-nodes. The nano-nodes, find in the nano-routers (also called nano-controllers) the next step in the topology. Its function is to receive the signals emitted by the nano-nodes,process them and send them to the nano-interfaces, which will emit them to the outside of the body with the necessary frequency and range, since it must overcome the skin barrier without losing signal clarity, so that it can be received by a mobile device at a close enough distance (usually a few meters). That mobile device would actually be a smartphone or any other device with an Internet connection, which allows it to act as a "Gateway". The topology also defines the possibility that the entire nano-node, nanorouter and nano-interface infrastructure is unified in a single nano-device, called pole or metamaterial defined by SDM software (Lee, SJ; Jung, C. ; Choi, K .; Kim, S. 2015). This model simplifies the topology, but it increases the size of the device and the complexity of its construction, conceived in several layers of graphene. In any case, regardless of the topology, nanorouters are necessary to route and decode the signals correctly, for their sending, but also for their reception, since they can be designed for a bidirectional service, which de facto implies the ability to receive signals. of commands, orders, operations that interact with the objects of the network.which de facto implies the ability to receive signals of commands, orders, operations that interact with the objects of the network.

To electromagnetic nanocommunication, we must add molecular nanocommunication, addressed in the entry on carbon nanotubes and new evidence in vaccine samples. In both publications, the implications of these objects in the field of neuroscience, neuromodulation and neurostimulation are analyzed, since if they are located in the neuronal tissue (something very likely, given the ability to overcome the blood-brain barrier), they can establish connections that bridge the neuronal synapse. This means that they link neurons with different shortcuts, shorter than natural axons (Fabbro, A .; Cellot, G .; Prato, M .; Ballerini, L. 2011). Although this can be used in experimental treatments to mitigate the effects of neurodegenerative diseases, it can also be used to directly interfere with neurons, the secretion of neurotransmitters such as dopamine, the involuntary activation of certain areas of the brain, their neurostimulation or modulation, through electrical impulses, generated from carbon nanotubes (Suzuki, J .; Budiman, H .; Carr, TA; DeBlois, JH 2013 | Balasubramaniam, S .; Boyle, NT; Della-Chiesa, A .; Walsh, F .; Mardinoglu, A .; Botvich, D .; Prina-Mello, A. 2011), as a result of the reception of electromagnetic signals and pulses from the nanocommunications network (Akyildiz, IF; Jornet, JM 2010). It is not necessary to alert what it means that an external signal, not controlled by the inoculated person,is the one that governs the segregation of neurotransmitters. Take an example to raise awareness; carbon nanotubes housed in neuronal tissue could interfere with the natural functioning of the secretion of neurotransmitters such as dopamine, which is partly responsible for cognitive processes, socialization, the reward system, desire, pleasure, conditioned learning or inhibition (Beyene, AG; Delevich, K .; Del Bonis-O'Donnell, JT; Piekarski, DJ; Lin, WC; Thomas, AW; Landry, MP 2019 | Sun, F .; Zhou, J .; Dai, B .; Qian, T .; Zeng, J .; Li, X .; Li, Y. 2020 | Sun, F .; Zeng, J .; Jing, M .; Zhou, J .; Feng, J .; Owen, SF; Li, Y. 2018 | Patriarchi, T .; Mohebi, A .; Sun, J .; Marley, A .; Liang, R .; Dong, C .; Tian, L. 2020 | Patriarchi, T .; Cho , JR; Merten, K .; Howe, MW; Marley, A .; Xiong, WH; Tian, L. 2018).This means that it could be inferred in the normal behavior patterns of people, their feelings and thoughts, and even force subliminal conditioned learning, without the individual being aware of what is happening. In addition to the properties already mentioned, carbon nanotubes not only open the doors to the wireless interaction of the human brain, they can also receive electrical signals from neurons and propagate them to nanorouters, since they also have the same properties as GQD graphene nano-antennas and quantum dots, as explained in (without the individual being aware of what is happening. In addition to the properties already mentioned, carbon nanotubes not only open the doors to the wireless interaction of the human brain, they can also receive electrical signals from neurons and propagate them to nanorouters, since they also have the same properties as GQD graphene nano-antennas and quantum dots, as explained in (without the individual being aware of what is happening. In addition to the properties already mentioned, carbon nanotubes not only open the doors to the wireless interaction of the human brain, they can also receive electrical signals from neurons and propagate them to nanorouters, since they also have the same properties as GQD graphene nano-antennas and quantum dots, as explained in (as explained in (as explained in (Demoustier, S .; Minoux, E .; Le Baillif, M .; Charles, M .; Ziaei, A. 2008 | Wang, Y .; Wu, Q .; Shi, W .; He, X .; Sun, X .; Gui, T. 2008 | Da-Costa, MR; Kibis, OV; Portnoi, ME 2009). This means that they can transmit and monitor the neuronal activity of individuals

For the data packets emitted and received from the nanocommunications network to reach their destination, it is essential that the communication protocol implements in some way the unique identification of the nanodevices (that is, through MAC) and transmits the information to an IP address. default. In this sense, the human body becomes an IoNT server (from the Internet of NanoThings) in which the communication client / server model can be assimilated. The mechanisms, commands or types of request remain to be determined, as well as the exact frequency and type of signal that operates the wireless nanocommunications network that would be installed with each vaccine, although obviously this information must be very confidential, given the possible consequences of biohacking. (Vassiliou, V. 2011) that could come to pass.In fact, in the work of (Al-Turjman, F. 2020) links the security problems and circumstances of nanocommunication networks connected to 5G (confidentiality, authentication, privacy, trust, intrusions, repudiation) and additionally, presents a summary of the operation of electromagnetic communication between nano-nodes, nano-sensors and nano-routers, using graphene antennas and transceivers for their link with data servers, in order to develop Big-data projects. It should be noted that the risks of network hacking are very similar to those that can be perpetrated in any network connected to the Internet (masquerade attack, location tracking, information traps, denial of service, nano-device hijacking, wormhole, MITM broker attack, malware, spam, sybil, phishing,neurostimulation illusion attack), which means a potential and additional risk, very serious, for people inoculated with the hardware of a nanocommunication network.

In this context, it is in which the discovery of the circuits of a nanorouter in the samples of the Pfizer vaccine is found, which is a key piece in all the research that is being carried out and that would confirm the installation of a hardware in the body of the inoculated people, without their informed consent, which executes collection and interaction processes that are completely beyond its control.

Nanorouters QCA

The discovered circuit, see figure 3, corresponds to the field of quantum dot cellular automata, also known as QCA (Quantum Cellular Automata), characterized by its nanometric scale and a very low energy consumption, as an alternative for the replacement of technology based on transistors. This is how it is defined by the work of (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013) from which the scheme of said circuit was obtained. The nanorouter referred to by the researchers is characterized by an ultra-low consumption factor, high processing speed (its frequency clock operates in a range of 1-2 THz), which is consistent with power conditions and data transfer requirements. , in the context of nanocommunication networks for the human body described by (Pierobon, M.; Jornet, JM; Akkari, N.; Almasri, S.;Akyildiz, IF 2014).

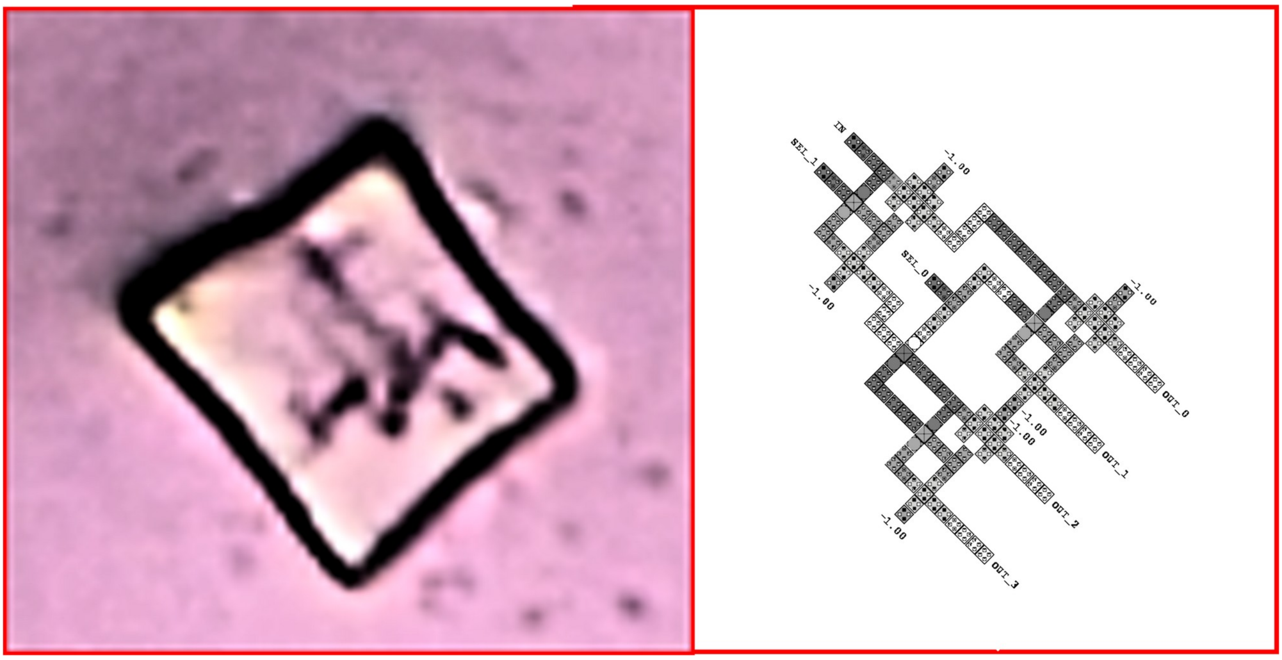


Fig. 3. Graphene quantum dot circuit in QCA cells. Circuit diagram of (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013) observed in a Pfizer vaccine sample.

According to the explanations of the work of (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013), the concept of quantum dot and quantum dot cell is distinguished, see figure 4. The QCA cell It is made up of four quantum dots whose polarization is variable. This makes it possible to distinguish the binary code of 0 and 1 based on the positive or negative charge of the quantum dots. In the words of the authors it is explained as follows " *The basic units of QCA circuits are cells made of quantum dots. A point, in this context, is just a region where an electrical charge can be located or not. A QCA cell has four quantum dots located in the corners. Each cell has two free, moving electrons that can tunnel between quantum dots. It is assumed that tunneling to the outside of the cell is not allowed due to a high potential barrier".* Extrapolated to graphene quantum dots, known as GQDs, which were identified in blood samples (due to emitted fluorescence), a QCA cell would require four GQDs to compose, which is perfectly consistent with the description given by the researchers. This is also corroborated by (Wang, ZF; Liu, F. 2011) in his work entitled " *Graphene quantum dots as building blocks for quantum cellular automata* ", where the use of graphene to create this type of circuit is confirmed.

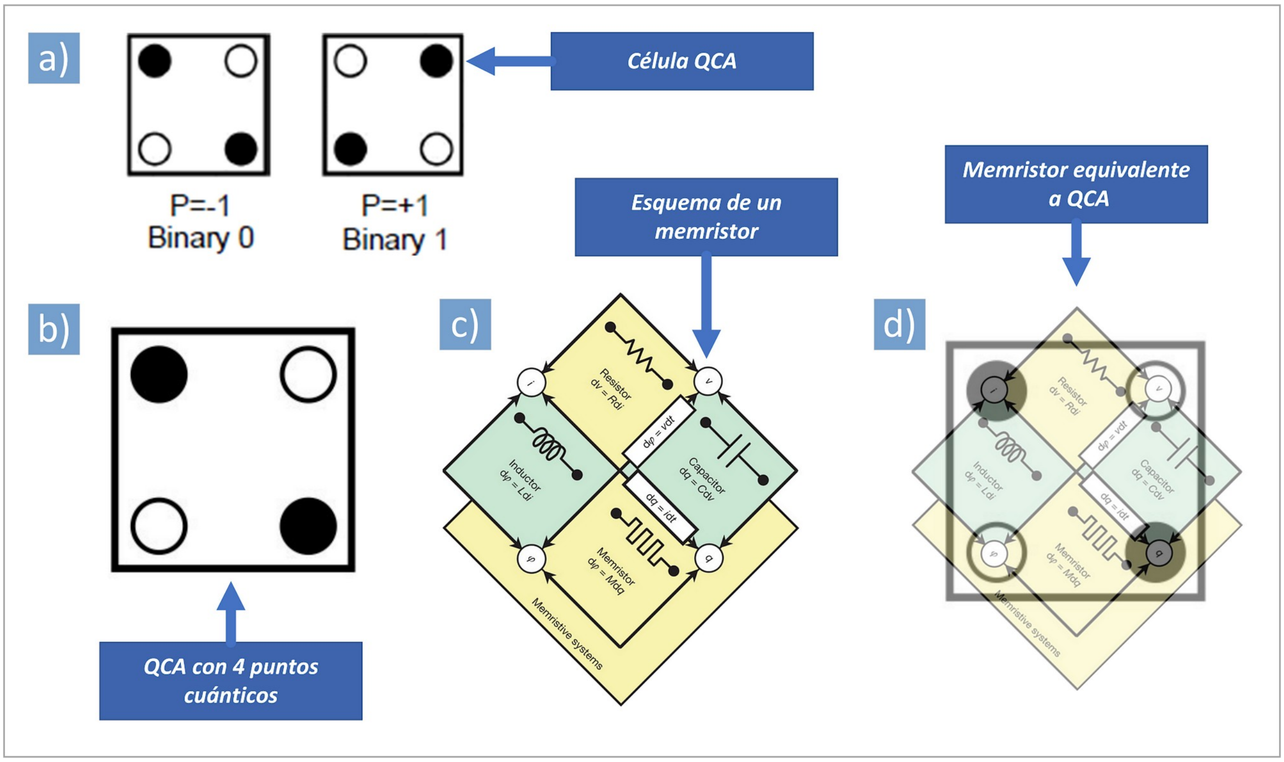


Fig. 4. Scheme of a QCA cell made up of four quantum dots (which can be graphene, among other materials). Note the great resemblance to memristors, in fact QCAs and memristors are transistors. (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013 | Strukov, DB; Snider, GS; Stewart, DR; Williams, RS 2009)

When the QCA cells are combined, cables and circuits are created, with a wide variety of shapes, schemes and applications, as can be seen in figure 5, where inverters, crossovers and logic gates are observed, also addressed by other authors such as (Xia, Y.; Qiu, K. 2008). This gives rise to more complex structures, which allow to reproduce the electronic diagrams of the transistors, processors, transceivers, multiplexers, demultiplexers and consequently of any router.

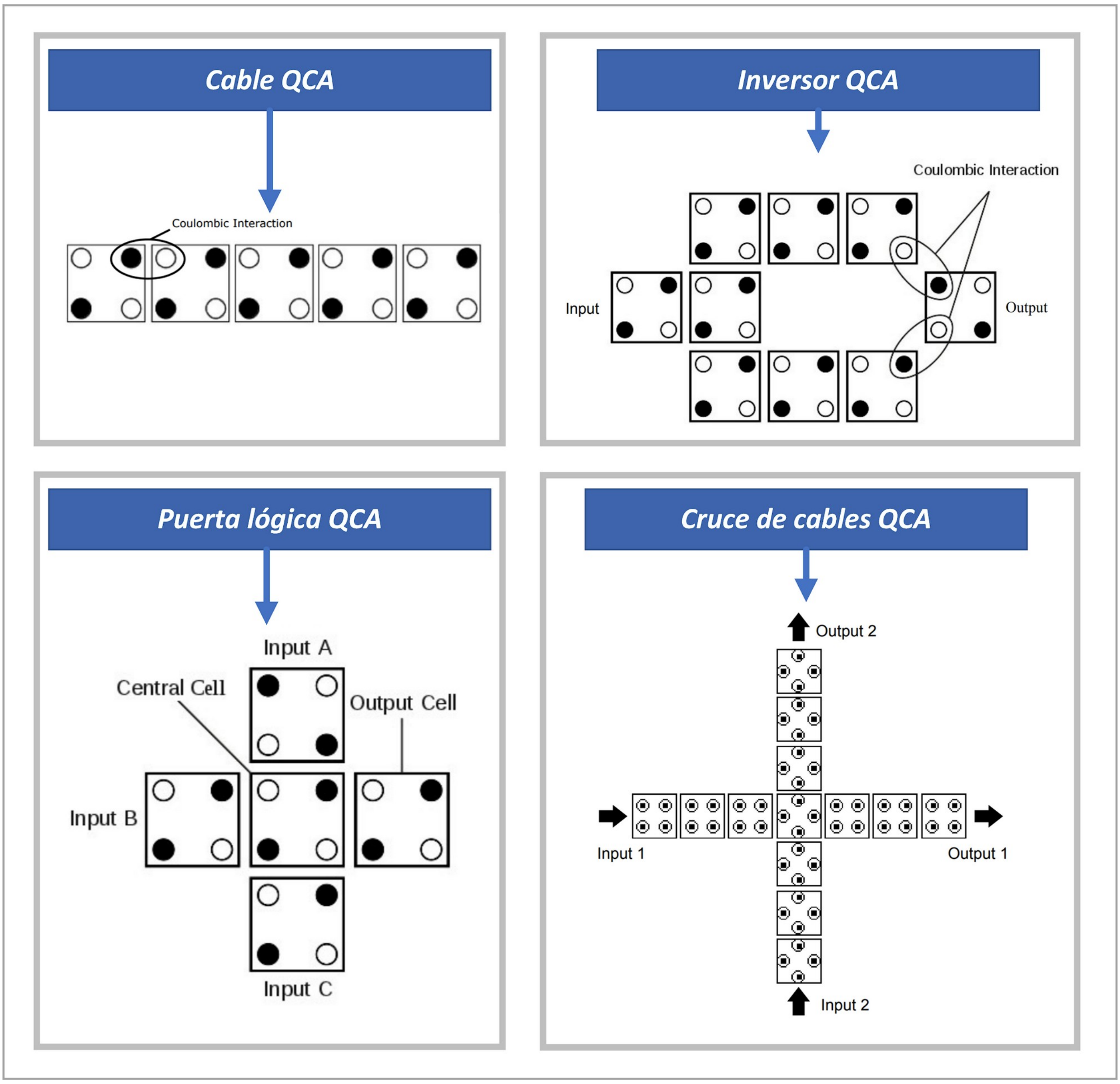


Fig. 5. QCAs can form various types of circuits, for example logic gates (lower left corner), cable crossovers (lower right corner), inverters (upper right corner) or cables (upper left corner). (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013)

It is important to explain that QCA cell-based circuits can operate in several superimposed layers, which allows a 3D (three-dimensional) structure to create much more complex and compressed electronics, see figure 6.

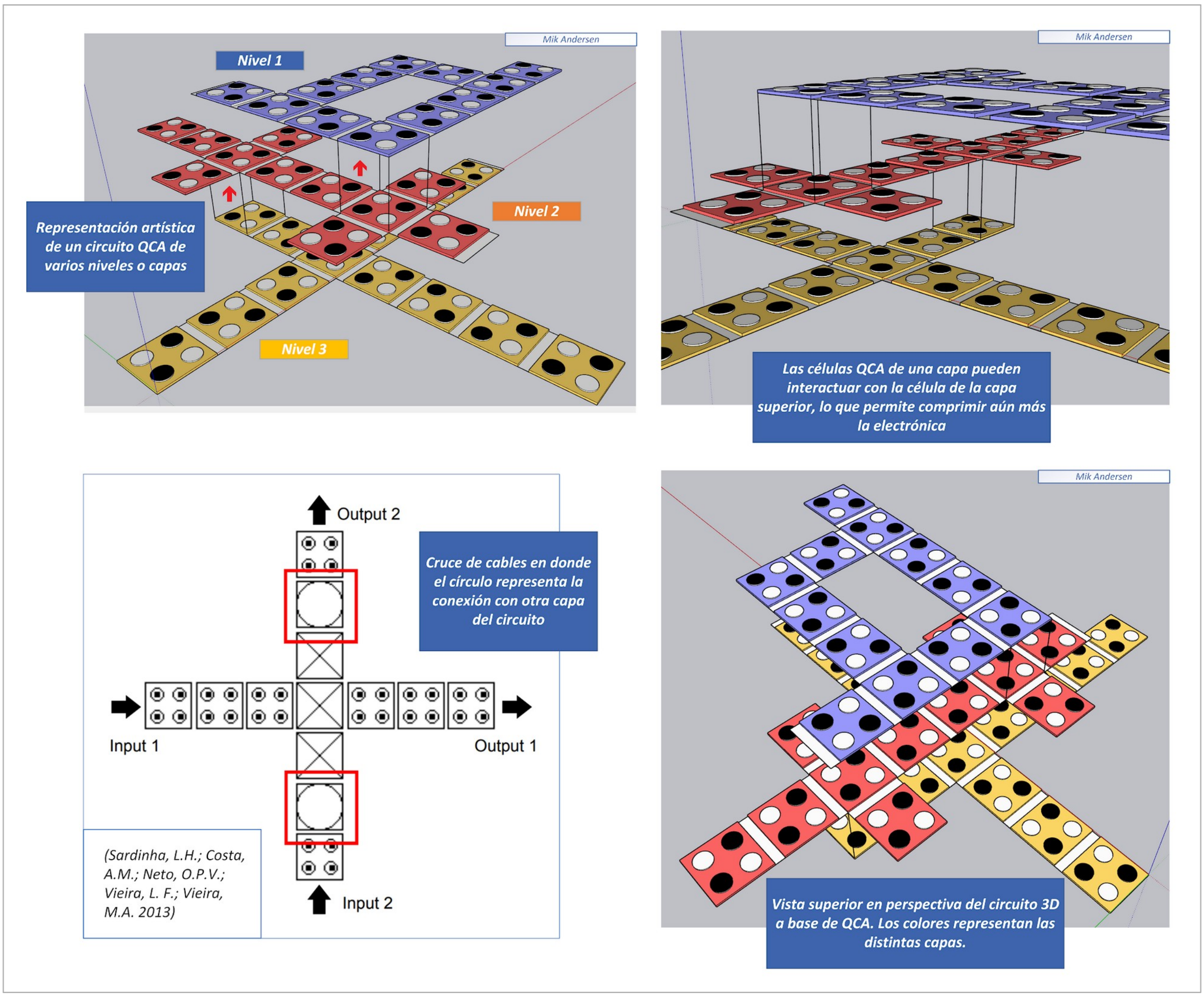


Fig. 6. According to (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013) more complex circuits can be built by annexing several superimposed layers. This is identified by the symbol of a circle in the design. There are also three artistic illustrations that represent various levels of circuits (own elaboration). Single-layer QCA cells can interact with the upper-layer cell, allowing the electronics to be further compressed. The colors represent the different layers.

To develop a nanorouter, according to the researchers (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013), several circuit structures are needed, specifically, cable crossings (which form logic gates), demultiplexers (demux) and parallel to serial converters, see figure X. "Demux" are electronic devices capable of receiving a signal at the input QCA (input) and sending it to one of several available output lines. (output), which allows the signal to be routed for further processing. The parallel-to-series converter is a circuit capable of taking several sets of data in an input (input), transporting them through different QCA cables and transmitting them at different instants of time through the output cables (output). This would be very, the component noted in the vaccine samples, see figure 7.

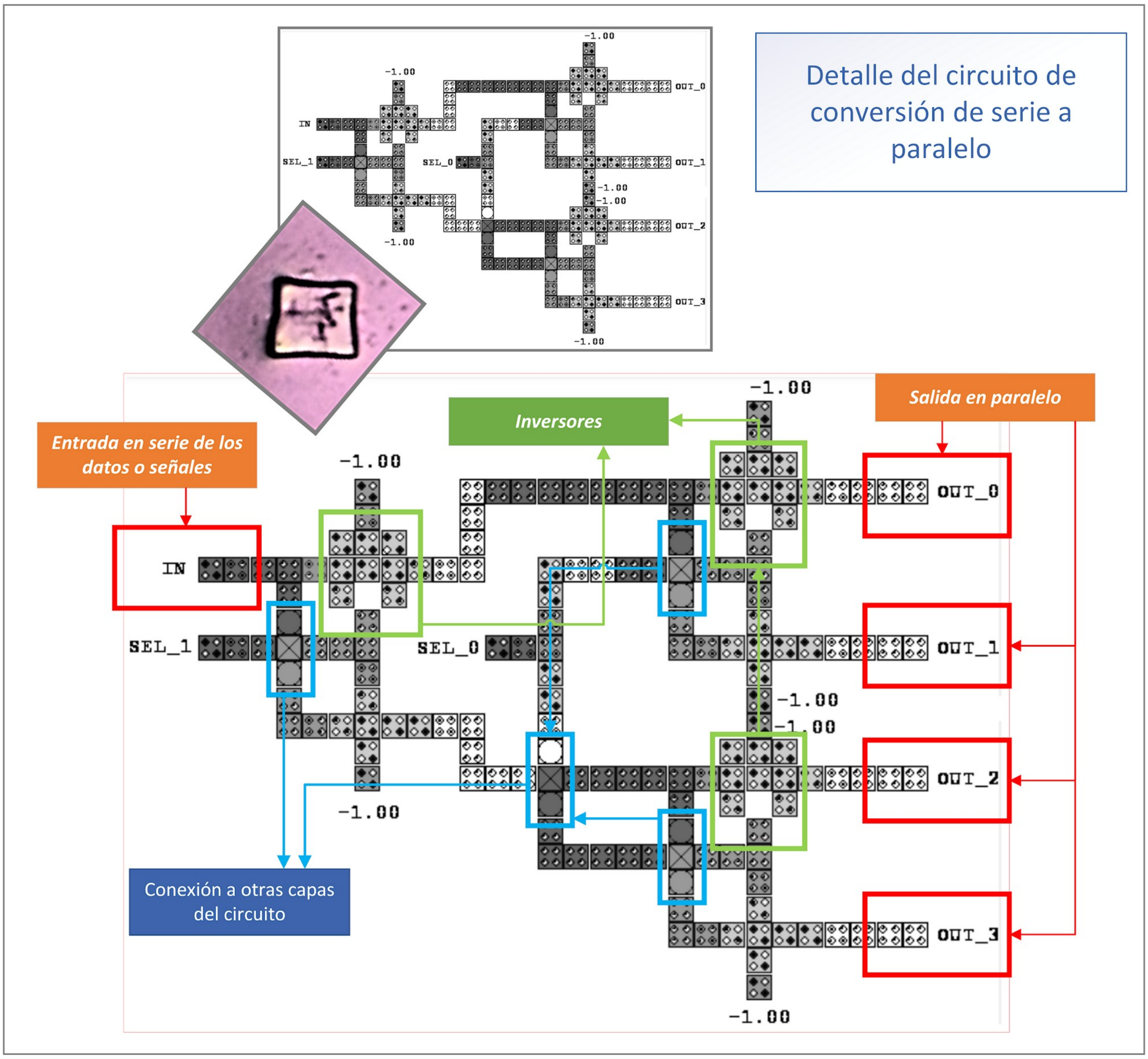
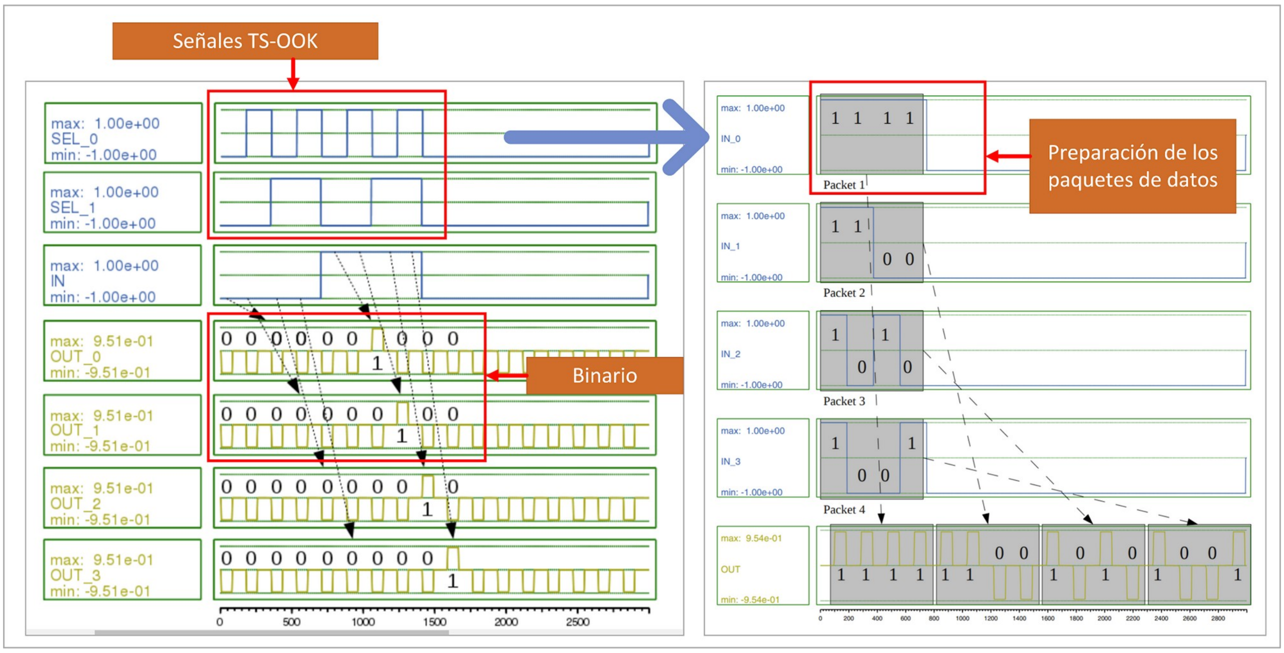


Fig. 7. Details of the circuit for converting TS-OOK signals in serial to a parallel output, confirming one of the typical tasks of a router. (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013). Red/Orange 1: Serial input of data or signals. Blue: Connection to other layers of the circuit. Green: Inverters. Red/Orange 2: Parallel output.

Another relevant aspect of the work of (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013) is the demonstration of the operation of the circuit, where the reception of a TS-OOK signal and its conversion to binary code, see figure 8. Once the binary code is obtained, the "demux" circuit is responsible for generating the data packets, according to the structure of the corresponding communications protocol.



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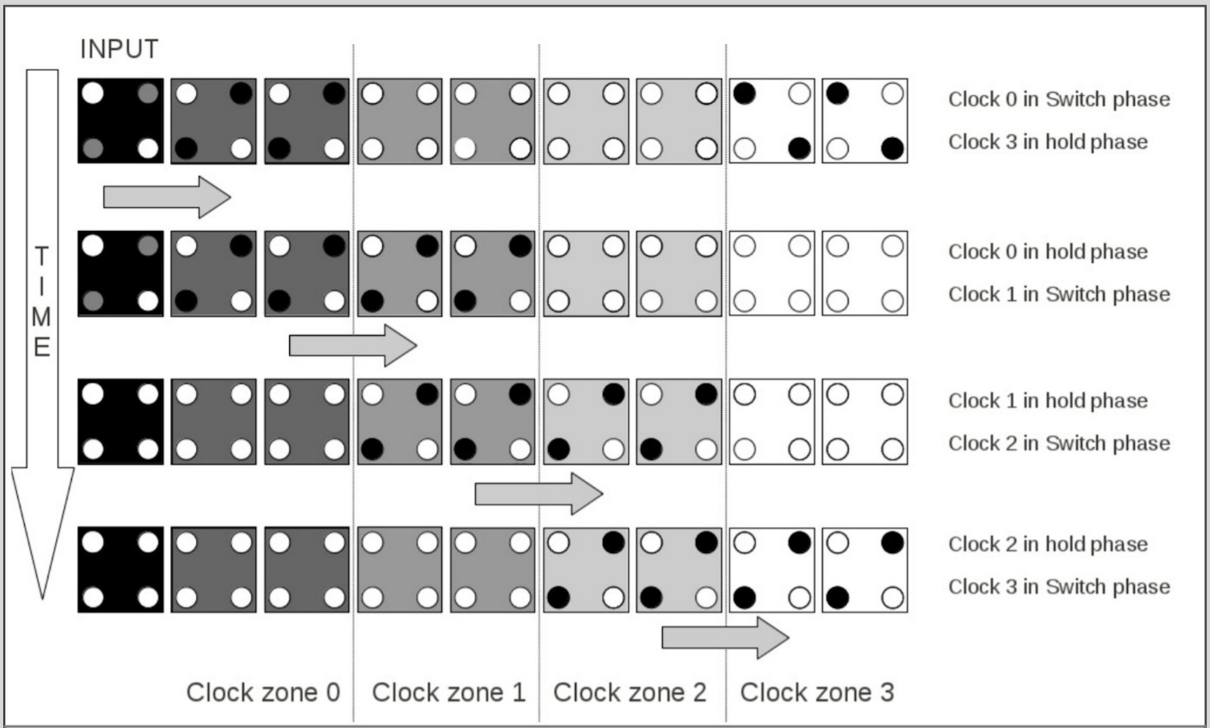
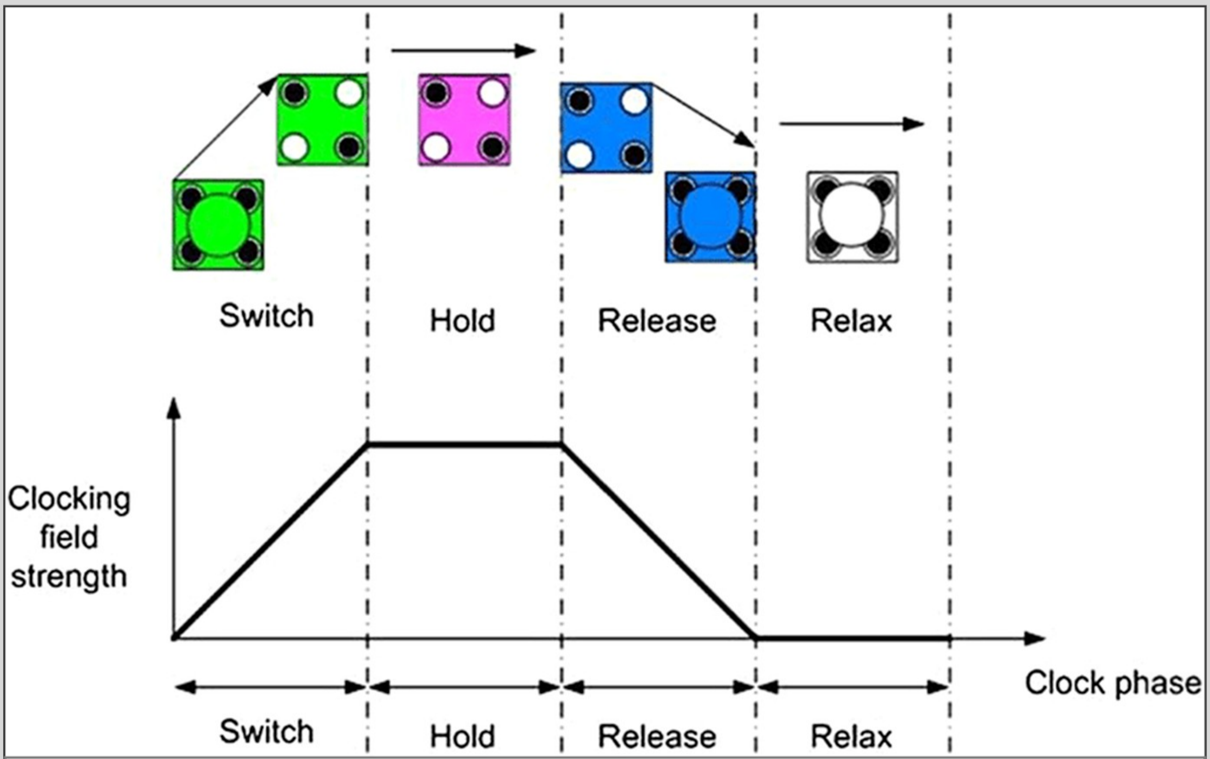
Everything explained by (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013) is also corroborated by (Das, B.; Das, JC; De, D.; Paul, AK 2017) In whose research, QCA circuit designs for demux and nanorouters are observed, with very similar schemes, to those already presented, which confirms the search for solutions for the problem of simple transmission and processing of signals and data at the nanometric scale, at in order to make nanocommunication networks effective.

Finally, although it can already be deduced from the nature, characteristics and properties of QCA cell circuits, the concept of clock speed must be highlighted. In fact, interesting is the ability of these electronic components to operate almost autonomously, without the need for a dedicated processor. This is because the QCA cell cables can measure the transfer time of the signals between the different cells, in what is called "clock zones", see figure 9 and the following investigations (Sadeghi, M.; Navi, K.; Dolatshahi, M . 2020 | Laajimi, R.; Niu, M. 2018 | Reis, DA; Torres, FS 2016 | Mohammadyan, S.; Angizi, S.; Navi, K. (2015).This effect allows the transmission of signals through the circuit, but also allows you to create a clock frequency, which is its own processing speed. If this concept is joined, the use of superconducting materials such as graphene and more specifically graphene quantum dots, then very high processing speeds can be achieved.



(Sardinha, L.H.; Costa, A.M.; Neto, O.P.V.; Vieira, L. F.; Vieira, M.A. 2013)



(Sadeghi, M.; Navi, K.; Dolatshahi, M. 2020)

Fig. 9. The nanorouter does not require an independent processor, because the QCA cells organized in the circuit cables already perform this function due to the superconducting and polarization properties of the quantum dots, which allows to infer a clock speed by phases or zones. circuit physics. (Sardinha, LH; Costa, AM; Neto, OPV; Vieira, LF; Vieira, MA 2013 | Sadeghi, M.; Navi, K.; Dolatshahi, M. 2020)

Circuit self-assembly

Although it seems impossible, the self-assembly of circuits is a possibility to consider in the hypothesis that has been explained. According to (Huang, J.; Momenzadeh, M.; Lombardi, F. 2007) " *Recent developments in QCA manufacturing (involving molecular implementations) have substantially changed the nature of processing. At very small feature sizes, it is envisioned that self- assembly or large-scale cell deposition will be used on isolated substrates. In these implementations, the QCA cells (each composed of two dipoles) are laid out in parallel V-shaped tracks. The QCA cells are arranged in a dense pattern and the computation occurs between adjacent cells. These manufacturing techniques are well suited for molecular implementation.* "However, there are other methods as well, such as DNA nanopatterns (Hu, W.; Sarveswaran, K.; Lieberman, M.; Bernstein, GH 2005), with which a template is created for the alignment of the graphene quantum dots , forming the QCA cells, thereby generating the aforementioned circuitry, see figure 10.

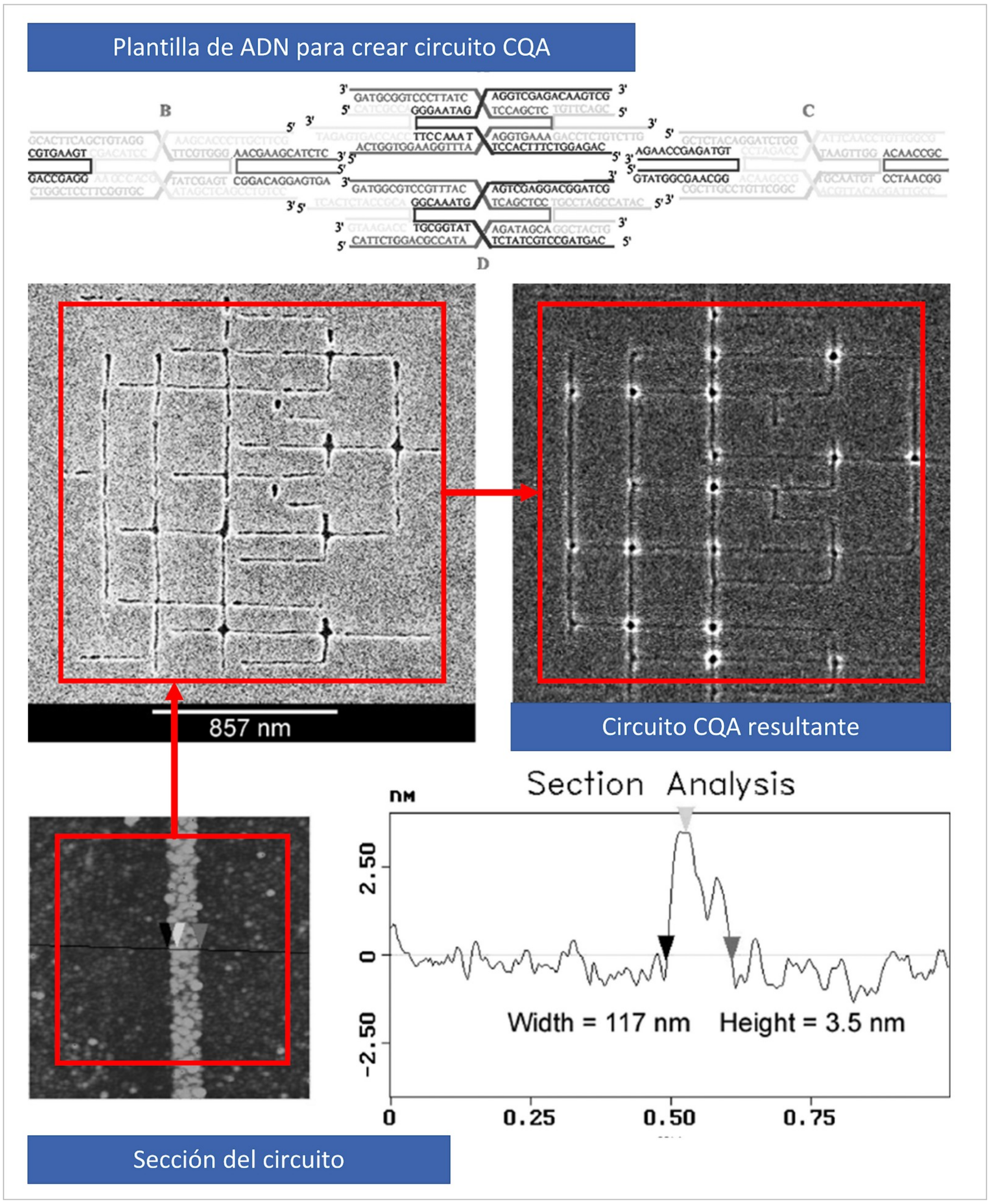


Fig. 10. Self-assembly of a circuit with quantum dots from a DNA pattern. The lines of the circuit cables are very similar to those observed in the vaccine sample, see figure 2 and 3. (Hu, W.; Sarveswaran, K.; Lieberman, M.; Bernstein, GH 2005)

According to (Hu, W.; Sarveswaran, K.; Lieberman, M.; Bernstein, GH 2005) " *Four-tile DNA rafts have been successfully synthesized and characterized by the gel electrophoresis method in our previous work* " according to the work of (Sarveswaran, K. 2004). This fits with the very possible existence of a gel / hydrogel in the vaccine composition, after the doctor's micro-Raman analysis (Campra, P. 2021) in which peaks with values close to 1450 were obtained, which could correspond to PVA, PQT-12, polyolefin, polyacrylamide, or polypyrrole, all of them components recognized in the scientific literature as gels and derivatives. On the other hand, it explicitly alludes to the electrophoresis method, or what is the same, the electrical polarization process that causes teslaphoresis, on carbon nanotubes, graphene, quantum dots and other semiconductors, as described (Bornhoeft, LR; Castillo, AC; Smalley, PR; Kittrell, C.; James, DK; Brinson, BE; Cherukuri, P. 2016) in his research. This would confirm that teslaphoresis plays a fundamental role in the composition of circuits, along with DNA patterns. If this is confirmed, it would mean that the circuits could self-assemble in the presence of electric fields or even the reception of electromagnetic waves (microwave EM). The study of (Pillers, M.; Goss, V.; Lieberman, M.2014) also confirms the construction of nanostructures and CQA using in this case graphene, graphene oxide (GO), electrophoresis and gel, causing controlled deposition in the areas indicated by the DNA pattern, reproducing results similar to those exposed in the study by Hu and Sarveswaran, thus making possible the creation of the electronic circuits already mentioned, see figure 11.

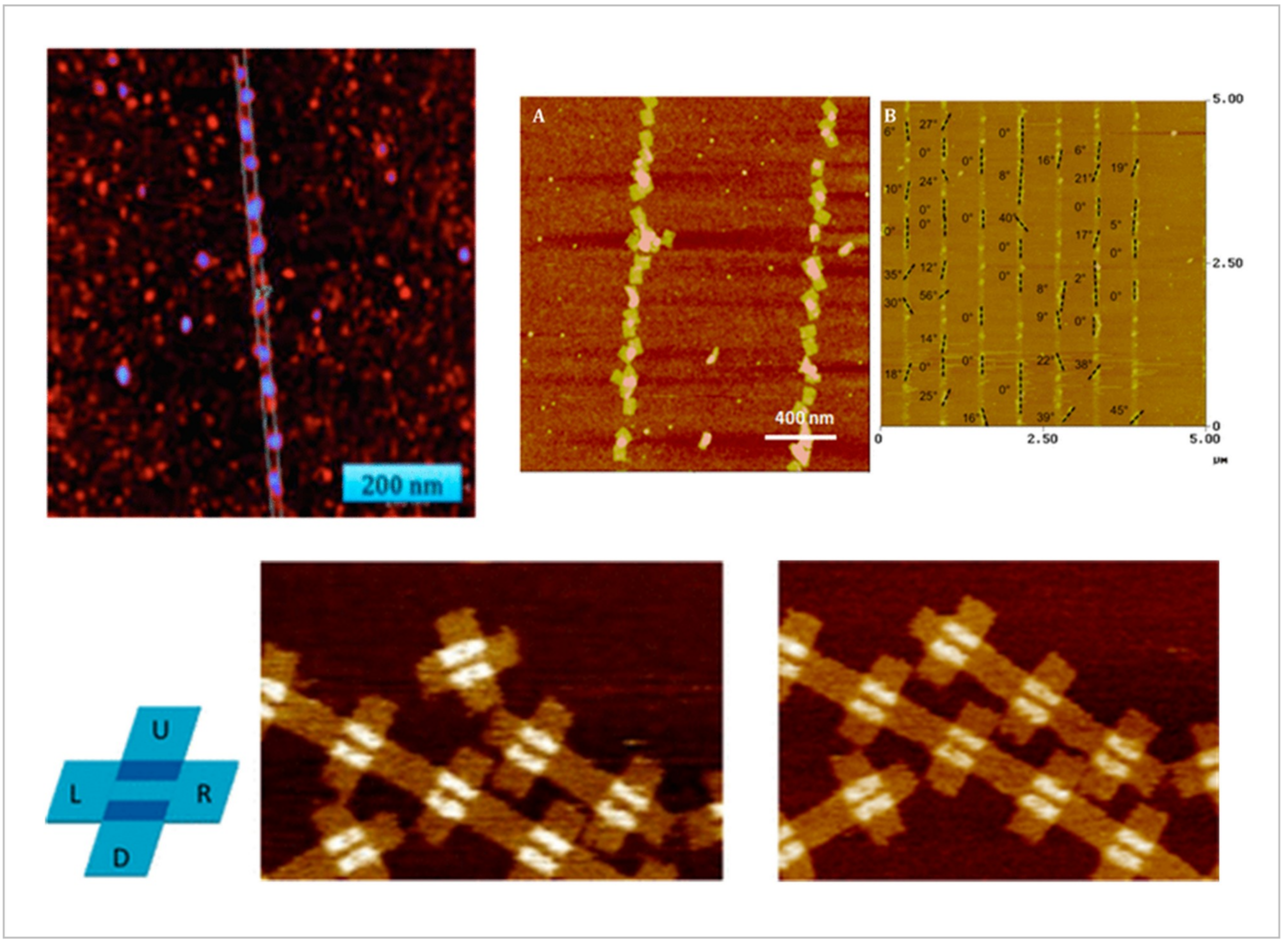


Fig. 11. Advances in the field of self-assembly of quantum dots and QCA cells can be observed in the scientific literature using the DNA template method to mark the order of construction and electrophoresis to initiate or trigger the process in the materials of the solution. (Pillers, M .; Goss, V .; Lieberman, M. 2014)

Plasmonic nano-emitters

Another issue that requires an explanation in the discovery of the circuit of a nanorouter, in the vaccine sample, is its location in what appears to be a quadrangular crystal. Although it could be thought that it is a randomly generated form, the bibliographic review reveals and justifies this type of form that serves as a framework for this type of circuit. It is actually a " plasmonic nano-emitter"In other words, it would correspond to a cubic-shaped nano-antenna (single crystal) of variable size on the nano-micrometric scale, which can emit, receive or repeat signals. This is possible through the plasmon activation property of its surface (that of the nano-emitting cube) that is locally excited to generate an oscillatory signal, as explained by (Ge, D.; Marguet, S.; Issa, A.; Jradi, S.; Nguyen, TH; Nahra, M .; Bachelot, R 2020), see figure 12. This agrees with the type of TS-OOK signals, which are transmitted through the intra-body nanocommunication network, being an indispensable requirement for a nano-router, to have a method to capture them. In other words, the crystalline cube acts as a transceiver for the nanorouter, due to its special properties, derived from the physics of the plasmon. This is corroborated when the scientific literature on electromagnetic nano-networks for the human body is consulted (Balghusoon, AO; Mahfoudh, S. 2020), the MAC protocols applied to the case (Jornet, JM; Pujol, JC; Pareta, JS 2012), methods for debugging errors in signals (Jornet, JM; Pierobon, M.; Akyildiz, IF 2008), or the modulation of pulses in femtoseconds in the terahertz band for nano-communication networks (Jornet, JM; Akyildiz, IF 2014), the parameterization of nano-networks for their perpetual operation (Yao, XW; Wang, WL; Yang, SH 2015), performance in wireless signal modulation for nano-networks (Zarepour, E.; Hassan, M.; Chou, CT; Bayat, S. 2015). In all cases, nano-transceivers are essential to be able to receive or emit a TS-OOK signal.

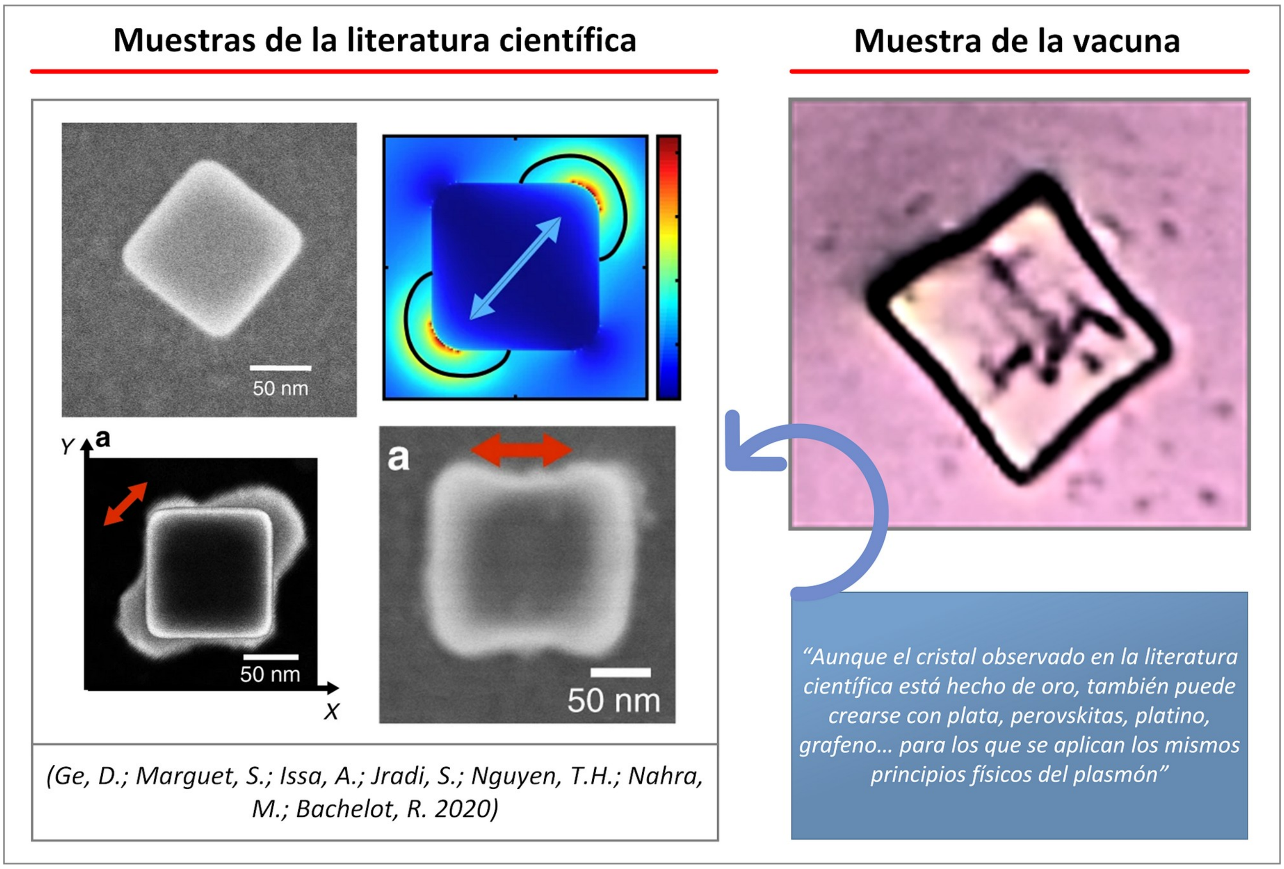


Fig. 12. Nano-micrometric scale crystals can play the role of an antenna or a transceiver, which makes it possible to imagine that finding the circuit in a quadrangular structure is not the product of chance. (Ge, D.; Marguet, S.; Issa, A.; Jradi, S.; Nguyen, TH; Nahra, M.; Bachelot, R. 2020). "Although the crystal observed in the scientific literature is made of gold, it can also be created with silver, perovskites, platinum, graphene ... for which the same physical principles of plasmon apply."

Plasmonic nanoemitters can acquire a cube shape, which would be the case observed in the vaccine sample, but also spherical and discoidal shape, being able to be self-assembled, to form larger nano-microstructures (Devaraj, V.; Lee, JM; Kim, YJ; Jeong, H .; Oh, JW 2021). Among the materials with which this plasmonic nano-emitter could be produced are gold, silver, perovskites and graphene, see (Oh, DK; Jeong, H.; Kim, J.; Kim, Y.; Kim, I.; Ok, JG; Rho, J. 2021 | Hamedi, HR; Paspalakis, E.; Yannopapas, V. 2021 | Gritsienko, AV; Kurochkin, NS; Lega, PV; Orlov, AP; Ilin, AS; Eliseev, SP; Vitukhnovsky, AG 2021 | Pierini, S. 2021), although it is likely that many others can be used.

CAM and TCAM memory for MAC and IP

If the presence of nanorouters in vaccines is considered, the hypothesis of the existence of one or more MAC addresses (fixed or dynamic) could be confirmed, which could be emitted from vaccinated people or through some other intermediary device (for example a mobile phone) . This approach is in line with what has already been explained and evidenced in this publication, but also according to scientific publications on nano-communication networks for the human body . According (Abadal, S .; Liaskos, C .; Tsioliaridou, A .; Ioannidis, S .; Pitsillides, A .; Solé-Pareta, J .; Cabellos-Aparicio, A. 2017) these MAC addresses allow the nano-network to transmit and receive data, because the individual has a unique identifier that allows them to access the medium, that is, the Internet. In this way, the nano-router can receive the signals corresponding to the data from the nano-sensors and nano-nodes of the nano-network to transmit them to the outside of the body, as long as there is a mobile device in the vicinity, which serves gateway to the Internet. Therefore, the hypothesis that MAC addresses of vaccinated people can be observed (through bluetooth signal tracking applications), when there is some type of interaction with the mobile media that act as a link.This does not mean that there is permanent communication, due to the need to save and optimize energy consumption (Mohrehkesh, S .; Weigle, MC 2014 | Mohrehkesh, S .; Weigle, MC; Das, SK 2015), which could explain intermittence in communications, periods of connection and inactivity.

The novelty in the field of MAC addresses, which comes together with the QCA circuits, with which nanorouters can be developed, is that memory circuits can also be created. The same researchers (Sardinha, LH; Silva, DS; Vieira, MA; Vieira, LF; Neto, OPV 2015) developed a new type of CAM memory that " *unlike random access memory (RAM), which returns data which are stored at the given address.CAM, however, receives the data as input and returns where the data can be found. CAM is useful for many applications that need fast lookups, such as Hought transforms, Huffman encoding, Lempel-Ziv compression, and network switches to map MAC addresses to IP addresses and vice versa. CAM is most useful for creating tables that look for exact matches, such as MAC address tables* . "This statement was extracted and copied verbatim to highlight that QCA circuits are the answer to MAC address storage and management for data transmission in nano-networks, which would confirm that vaccines are, among other things, a means of installing hardware for the control, modulation and monitoring of people.

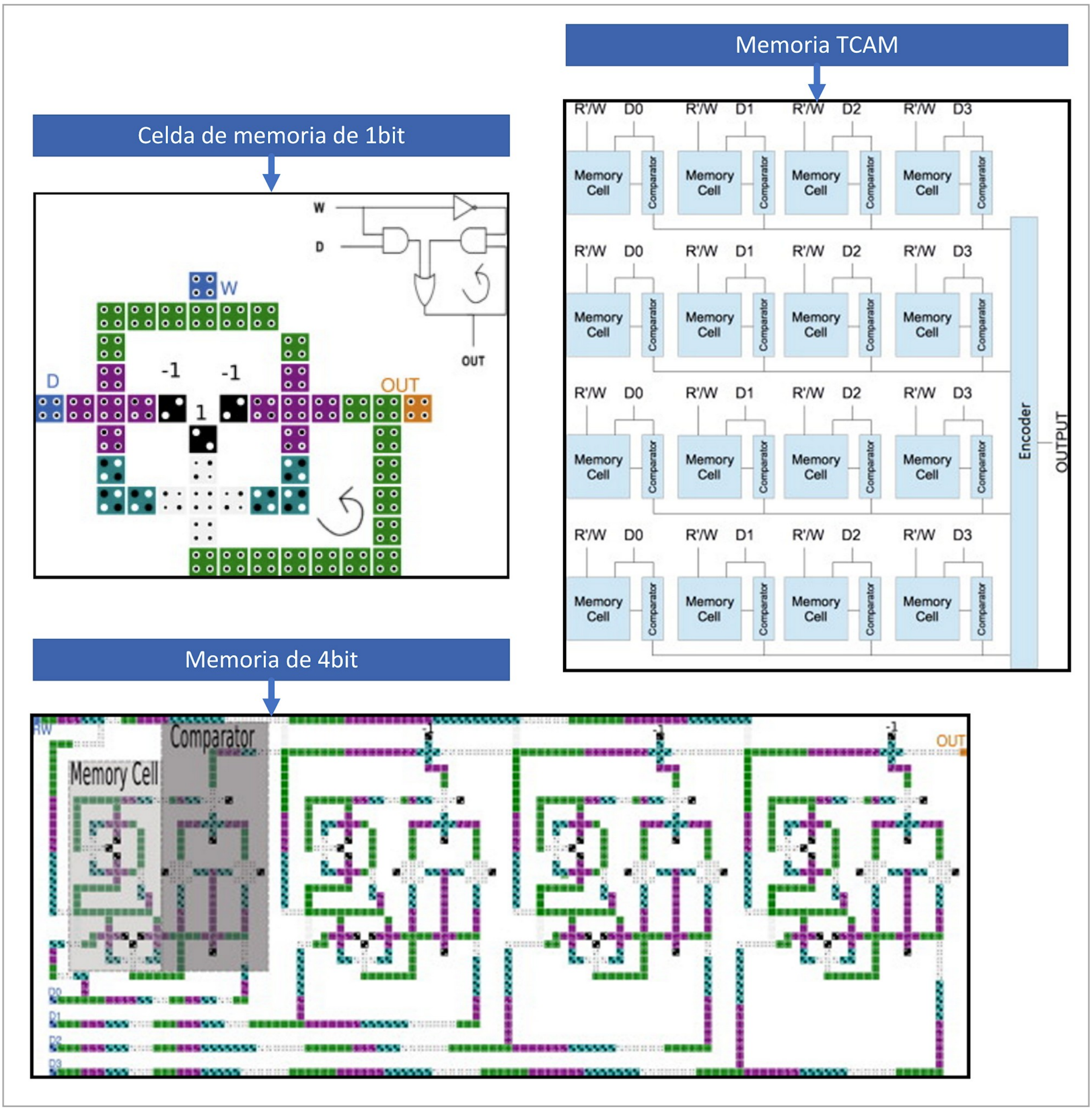


Fig. 13. Memory circuits for the storage of MAC and IP addresses made with the same QCA technology of the nanorouter observed in the Pfizer vaccine samples. (Sardinha, LH; Silva, DS; Vieira, MA; Vieira, LF; Neto, OPV 2015)

Additionally, (Sardinha, LH; Silva, DS; Vieira, MA; Vieira, LF; Neto, OPV 2015) also developed the TCAM memory, which is a special type of CAM memory that would be useful to " *create tables to search for longer matches , such as IP routing tables organized by IP prefixes. To reduce latency and make communication faster, routers use TCAM*". This statement clearly affects its use in nano-routers in order to be able to transmit the data obtained in the nano-network to a specific recipient server, accessible on the Internet. In other words, the data collected by the nano-network They should be stored / registered in a database, of which the vaccine recipient would not have knowledge of their existence, of which he was not informed, and in which it is unknown what information is used.

Bibliography

1. Akyildiz, IF; Jornet, JM (2010). Electromagnetic wireless nanosensor networks. Nano Communication Networks, 1 (1), pp. 3-19. https://doi.org/10.1016/j.nancom.2010.04.001
2. Al-Turjman, F. (2020). Intelligence and security in big 5G-oriented IoNT: An overview. Future Generation Computer Systems, 102, pp. 357-368. https://doi.org/10.1016/j.future.2019.08.009
3. Balasubramaniam, S .; Boyle, NT; Della-Chiesa, A .; Walsh, F .; Mardinoglu, A .; Botvich, D .; Prina-Mello, A. (2011). Development of artificial neuronal networks for molecular communication. Nano Communication Networks, 2 (2-3), pp. 150-160. https://doi.org/10.1016/j.nancom.2011.05.004
4. Balghusoon, AO; Mahfoudh, S. (2020). Routing Protocols for Wireless Nanosensor Networks and Internet of Nano Things: A Comprehensive Survey. IEEE Access, 8, pp. 200724-200748. https://doi.org/10.1109/ACCESS.2020.3035646
5. Beyene, AG; Delevich, K .; Del Bonis-O'Donnell, JT; Piekarski, DJ; Lin, WC; Thomas, AW; Landry, MP (2019). Imaging striatal dopamine release using a nongenetically encoded near infrared fluorescent catecholamine nanosensor. Science advances, 5 (7), eaaw3108. https://doi.org/10.1126/sciadv.aaw3108
6. Bornhoeft, LR; Castillo, AC; Smalley, PR; Kittrell, C .; James, DK; Brinson, BE; Cherukuri, P. (2016). Teslaphoresis of carbon nanotubes. ACS nano, 10 (4), pp. 4873-4881. https://doi.org/10.1021/acsnano.6b02313
7. Bouchedjera, IA; Aliouat, Z .; Louail, L. (2020). EECORONA: Energy Efficiency Coordinate and Routing System for Nanonetworks. In: International Symposium on Modeling and Implementation of Complex Systems. Cham. pp. 18-32. https://doi.org/10.1007/978-3-030- https://doi.org/10.1007/978-3-030-
8. Bouchedjera, IA; Louail, L .; Aliouat, Z .; Harous, S. (2020). DCCORONA: Distributed Cluster-based Coordinate and Routing System for Nanonetworks. In: 2020 11th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON). IEEE. pp. 0939-0945. https://doi.org/10.1109/UEMCON51285.2020.9298084
9. Campra, P. (2021a). Observations of possible microbiotics in COVID RNAm Version 1. vaccines http://dx.doi.org/10.13140/RG.2.2.13875.55840
10. Campra, P. (2021b). Detection of graphene in COVID19 vaccines by Micro-RAMAN spectroscopy. https://www.researchgate.net/publication/355979001_DETECTION_OF_GRAPHENE_IN_COVID19_VACCINES
11. Campra, P. (2021c). MICROSTRUCTURES IN COVID VACCINES: Inorganic crystals or Wireless Nanosensors Network? https://www.researchgate.net/publication/356507702_MICROSTRUCTURES_IN_COVID_VACCINES_inorganic_crystals_or_Wireless_Nanosensors_Network
12. Chopra, N .; Phipott, M .; Alomainy, A .; Abbasi, QH; Qaraqe, K .; Shubair, RM (2016). THz time domain characterization of human skin tissue for nano-electromagnetic communication. In: 2016 16th Mediterranean Microwave Symposium (MMS) (pp. 1-3). IEEE. https://doi.org/10.1109/MMS.2016.7803787
13. Da-Costa, MR; Kibis, OV; Portnoi, ME (2009). Carbon nanotubes as a basis for terahertz emitters and detectors. Microelectronics Journal, 40 (4-5), pp. 776-778. https://doi.org/10.1016/j.mejo.2008.11.016

14. Das, B .; Das, JC; From d.; Paul, AK (2017). Nano-Router Design for Nano-Communication in Single Layer Quantum Cellular Automata. In: International Conference on Computational Intelligence, Communications, and Business Analytics (pp. 121-133). Springer, Singapore. https://doi.org/10.1007/978-981-10-6430-2_11
15. Demoustier, S .; Minoux, E .; Le Baillif, M .; Charles, M .; Ziaei, A. (2008). Review of two microwave applications of carbon nanotubes: nano-antennas and nano-switches. Comptes Rendus Physique, 9 (1), pp. 53-66. https://doi.org/10.1016/j.crhy.2008.01.001
16. Devaraj, V .; Lee, JM; Kim, YJ; Jeong, H .; Oh, JW (2021). [Pre-print]. Designing an Efficient Self-Assembled Plasmonic Nanostructures from Spherical Shaped Nanoparticles. International Journal of Molecular Science. https://www.preprints.org/manuscript/202109.0225/v1
17. Dhoutaut, D .; Arrabal, T .; Dedu, E. (2018). Bit simulator, an electromagnetic nanonetworks simulator. In: Proceedings of the 5th ACM International Conference on Nanoscale Computing and Communication (pp. 1-6). https://doi.org/10.1145/3233188.3233205
18. Fabbro, A .; Cellot, G .; Prato, M .; Ballerini, L. (2011). Interfacing neurons with carbon nanotubes: (re) engineering neuronal signaling. Progress in brain research, 194, pp. 241-252. https://doi.org/10.1016/B978-0-444-53815-4.00003-0
19. Ferjani, H .; Touati, H. (2019). Data communication in electromagnetic nano-networks for healthcare applications. In: International Conference on Mobile, Secure, and Programmable Networking (pp. 140-152). Springer, Cham. https://doi.org/10.1007/978-3-030-22885-9_13
20. Ge, D .; Marguet, S .; Issa, A .; Jradi, S .; Nguyen, TH; Nahra, M .; Bachelot, R. (2020). Hybrid plasmonic nano-emitters with controlled single quantum emitter positioning on the local excitation field. Nature communications, 11 (1), pp1-11. https://doi.org/10.1038/s41467-020-17248-8
21. Gritsienko, AV; Kurochkin, NS; Lega, PV; Orlov, AP; Ilin, AS; Eliseev, SP; Vitukhnovsky, AG (2021). Optical properties of new hybrid nanoantenna in submicron cavity. In: Journal of Physics: Conference Series (Vol. 2015, No. 1, p. 012052). IOP Publishing. https://doi.org/10.1088/1742-6596/2015/1/012052
22. Hamedi, HR; Paspalakis, E .; Yannopapas, V. (2021). Effective Control of the Optical Bistability of a Three-Level Quantum Emitter near a Nanostructured Plasmonic Metasurface. In: Photonics (Vol. 8, No. 7, p. 285). Multidisciplinary Digital Publishing Institute. https://doi.org/10.3390/photonics8070285
23. Hu, W .; Sarveswaran, K .; Lieberman, M .; Bernstein, GH (2005). High resolution electron beam lithography and DNA nanopatterns for molecular QCA. IEEE Transactions on Nanotechnology, 4 (3), pp. 312-316. https://doi.org/10.1109/TNANO.2005.847034
24. Huang, G .; Huang, H. (2018). Application of dextran as nanoscale drug carriers. Nanomedicine, 13 (24), pp. 3149-3158. https://doi.org/10.2217/nnm-2018-0331
25. Huang, J .; Momenzadeh, M .; Lombardi, F. (2007). Design of sequential circuits by quantum-dot cellular automata. Microelectronics Journal, 38 (4-5), pp. 525-537. https://doi.org/10.1016/j.mejo.2007.03.013
26. Huang, J .; Xie, G .; Kuang, R .; Deng, F .; Zhang, Y. (2021). QCA-based Hamming code circuit for nano communication network. Microprocessors and Microsystems, 84, 104237. https://doi.org/10.1016/j.micpro.2021.104237
27. John, AA; Subramanian, AP; Vellayappan, MV; Balaji, A .; Mohandas, H .; Jaganathan, SK (2015). Carbon nanotubes and graphene as emerging candidates in neuroregeneration and neurodrug delivery. International journal of nanomedicine, 10, 4267. https://dx.doi.org/10.2147%2FIJN.S83777

28. Jornet, J.M.; Akyildiz, I.F. (2014). Femtosecond-long pulse-based modulation for terahertz band communication in nanonetworks. IEEE Transactions on Communications, 62(5), pp. 1742-1754. https://doi.org/10.1109/TCOMM.2014.033014.130403
29. Jornet, J.M.; Pierobon, M.; Akyildiz, I.F. (2008). Nano Communication Networks. Networks (Elsevier), 52, pp. 2260-2279. http://dx.doi.org/10.1016/j.nancom.2014.04.001
30. Jornet, J.M.; Pujol, J.C.; Pareta, J.S. (2012). Phlame: A physical layer aware mac protocol for electromagnetic nanonetworks in the terahertz band. Nano Communication Networks, 3(1), pp. 74-81. https://doi.org/10.1016/j.nancom.2012.01.006
31. Kumar, M.R. (2019). A Compact Graphene Based Nano-Antenna for Communication in Nano-Network. Journal of the Institute of Electronics and Computer, 1(1), pp. 17-27. https://doi.org/10.33969/JIEC.2019.11003
32. Laajimi, R.; Niu, M. (2018). Nanoarchitecture of Quantum-Dot Cellular Automata (QCA) Using Small Area for Digital Circuits. Advanced Electronics Circuits–Principles, Architectures and Applications on Emerging Technologies, pp. 67-84. https://www.intechopen.com/chapters/58619
33. Lee, S.J.; Jung, C.; Choi, K.; Kim, S. (2015). Design of wireless nanosensor networks for intrabody application. International Journal of Distributed Sensor Networks, 11(7), 176761. https://doi.org/10.1155/2015/176761
34. Lu, J.; Yeo, P.S.E.; Gan, C.K.; Wu, P.; Loh, K.P. (2011). Transforming C60 molecules into graphene quantum dots. Nature nanotechnology, 6(4), pp. 247-252. https://doi.org/10.1038/nnano.2011.30
35. Massicotte, M.; Yu, V.; Whiteway, E.; Vatnik, D.; Hilke, M. (2013). Quantum Hall effect in fractal graphene: growth and properties of graphlocons. Nanotechnology, 24(32), 325601. https://doi.org/10.1088/0957-4484/24/32/325601
36. Mitragotri, S.; Anderson, D.G.; Chen, X.; Chow, E.K.; Ho, D.; Kabanov, A.V.; Xu, C. (2015). Accelerating the translation of nanomaterials in biomedicine. ACS nano, 9(7), pp. 6644-6654. https://doi.org/10.1021/acsnano.5b03569
37. Mohammadyan, S.; Angizi, S.; Navi, K. (2015). New fully single layer QCA full-adder cell based on feedback model. International Journal of High Performance Systems Architecture, 5(4), pp. 202-208. https://doi.org/10.1504/IJHPSA.2015.072847
38. Mohrehkesh, S.; Weigle, M.C. (2014). Optimizing energy consumption in terahertz band nanonetworks. IEEE Journal on Selected Areas in Communications, 32(12), pp. 2432-2441. https://doi.org/10.1109/JSAC.2014.2367668
39. Mohrehkesh, S.; Weigle, M.C.; Das, S.K. (2015). DRIH-MAC: A distributed receiver-initiated harvesting-aware MAC for nanonetworks. IEEE Transactions on Molecular, Biological and Multi-Scale Communications, 1(1), pp. 97-110. https://doi.org/10.1109/TMBMC.2015.2465519
40. Oh, D.K.; Jeong, H.; Kim, J.; Kim, Y.; Kim, I.; Ok, J.G.; Rho, J. (2021). Top-down nanofabrication approaches toward single-digit-nanometer scale structures. Journal of Mechanical Science and Technology, pp. 1-23. https://doi.org/10.1007/s12206-021-0243-7
41. Patriarchi, T.; Cho, J.R.; Merten, K.; Howe, M.W.; Marley, A.; Xiong, W.H.; Tian, L. (2018). Ultrafast neuronal imaging of dopamine dynamics with designed genetically encoded sensors. Science, 360(6396). https://doi.org/10.1126/science.aat4422
42. Patriarchi, T.; Mohebi, A.; Sun, J.; Marley, A.; Liang, R.; Dong, C.; Tian, L. (2020). An expanded palette of dopamine sensors for multiplex imaging in vivo. Nature methods, 17(11), pp. 1147-1155. https://doi.org/10.1038/s41592-020-0936-3

43. Pierini, S. (2021). [Preprint]. Experimental study of perovskite nanocrystals as single photon sources for integrated quantum photonics. Arxiv. https://arxiv.org/pdf/2105.14245.pdf
44. Pierobon, M.; Jornet, J.M.; Akkari, N.; Almasri, S.; Akyildiz, I.F. (2014). A routing framework for energy harvesting wireless nanosensor networks in the Terahertz Band. Wireless networks, 20(5), pp. 1169-1183. https://doi.org/10.1007/s11276-013-0665-y
45. Pillers, M.; Goss, V.; Lieberman, M. (2014). Electron-beam lithography and molecular liftoff for directed attachment of DNA nanostructures on silicon: Top-down meets bottom-up. Accounts of chemical research, 47(6), pp. 1759-1767. https://doi.org/10.1021/ar500001e
46. Reis, D.A.; Torres, F.S. (2016). A Defects Simulator for Robustness Analysis of QCA Circuits. Journal of Integrated Circuits and Systems, 11(2), pp. 86-96. https://doi.org/10.29292/jics.v11i2.433
47. Sadeghi, M.; Navi, K.; Dolatshahi, M. (2020). Novel efficient full adder and full subtractor designs in quantum cellular automata. The Journal of Supercomputing, 76(3), pp. 2191-2205. https://doi.org/10.1007/s11227-019-03073-4
48. Sardinha, L.H.; Costa, A.M.; Neto, O.P.V.; Vieira, L.F.; Vieira, M.A. (2013). Nanorouter: a quantum-dot cellular automata design. IEEE Journal on Selected Areas in Communications, 31(12), pp. 825-834. https://doi.org/10.1109/JSAC.2013.SUP2.12130015
49. Sardinha, L.H.; Silva, D.S.; Vieira, M.A.; Vieira, L.F.; Neto, O.P.V. (2015). Tcam/cam-qca: (ternary) content addressable memory using quantum-dot cellular automata. Microelectronics Journal, 46(7), pp. 563-571. https://doi.org/10.1016/j.mejo.2015.03.020
50. Sarveswaran, K. (2004). [Documento reservado]. Self-assembly and lithographic patterning of DNA rafts.DARPA Conf. Foundations of Nanoscience: Self-Assembled Architectures and Devices, Snowbird, UT. [Enlace no disponible]
51. Strukov, D.B.; Snider, G.S.; Stewart, D.R.; Williams, R.S. (2009). El memristor perdido, encontrado The missing memristor found. Nature, 459(7250), 1154. https://doi.org/10.1038/nature06932
52. Sun, F.; Zhou, J.; Dai, B.; Qian, T.; Zeng, J.; Li, X.; Li, Y. (2020). Next-generation GRAB sensors for monitoring dopaminergic activity in vivo. Nature methods, 17(11), pp. 1156-1166. https://doi.org/10.1038/s41592-020-00981-9
53. Suzuki, J.; Budiman, H.; Carr, T.A.; DeBlois, J.H. (2013). A simulation framework for neuron-based molecular communication. Procedia Computer Science, 24, pp. 103-113. https://doi.org/10.1016/j.procs.2013.10.032
54. Tsioliaridou, A.; Liaskos, C.; Ioannidis, S.; Pitsillides, A. (2015). CORONA: A Coordinate and Routing system for Nanonetworks. En: Proceedings of the second annual international conference on nanoscale computing and communication. pp. 1-6. https://doi.org/10.1145/2800795.2800809|https://sci-hub.mksa.top/10.1145/2800795.2800809
55. Vassiliou, V. (2011). Security issues in nanoscale communication networks. 3rd NaNoNetworking Summit, pp. 1-53. http://www.n3cat.upc.edu/n3summit2011/presentations/Security_Issues_in_Nanoscale_Communication_Networks.pdf
56. Vavouris, A.K.; Dervisi, F.D.; Papanikolaou, V.K.; Karagiannidis, G.K. (2018). An energy efficient modulation scheme for body-centric nano-communications in the THz band. En: 2018 7th International Conference on Modern Circuits and Systems Technologies (MOCAST) (pp. 1-4). IEEE. https://doi.org/10.1109/MOCAST.2018.8376563
57. Wang, Z.F.; Liu, F. (2011). Nanopatterned graphene quantum dots as building blocks for quantum cellular automata. Nanoscale, 3(10), pp. 4201-4205.

https://doi.org/10.1039/C1NR10489F

58. Wang, W.L.; Wang, C.C.; Yao, X.W. (2019). Slot self-allocation based mac protocol for energy harvesting nano-networks. Sensors, 19(21), 4646. https://doi.org/10.3390/s19214646
59. Wang, Y.; Wu, Q.; Shi, W.; He, X.; Sun, X.; Gui, T. (2008). Radiation properties of carbon nanotubes antenna at terahertz/infrared range. International Journal of Infrared and Millimeter Waves, 29(1), pp. 35-42. https://doi.org/10.1007/s10762-007-9306-9
60. Xia, Y.; Qiu, K. (2008). Design and application of universal logic gate based on quantum-dot cellular automata. En: 2008 11th IEEE International Conference on Communication Technology (pp. 335-338). IEEE. https://doi.org/10.1109/ICCT.2008.4716260 | https://sci-hub.mksa.top/10.1109/ICCT.2008.4716260
61. Yao, X.W.; Wang, W.L.; Yang, S.H. (2015). Joint parameter optimization for perpetual nanonetworks and maximum network capacity. IEEE Transactions on Molecular, Biological and Multi-Scale Communications, 1(4), pp. 321-330. https://doi.org/10.1109/TMBMC.2016.2564967
62. Yu, J.; Zhang, Y.; Yan, J.; Kahkoska, A.R.; Gu, Z. (2018). Advances in bioresponsive closed-loop drug delivery systems. International journal of pharmaceutics, 544(2), pp. 350-357. https://doi.org/10.1016/j.ijpharm.2017.11.064
63. Zarepour, E.; Hassan, M.; Chou, C.T.; Bayat, S. (2015). Performance analysis of carrier-less modulation schemes for wireless nanosensor networks. En: 2015 IEEE 15th International Conference on Nanotechnology (IEEE-NANO) (pp. 45-50). IEEE. https://doi.org/10.1109/NANO.2015.7388653
64. Zhang, R.; Yang, K.; Abbasi, Q.H.; Qaraqe, K.A.; Alomainy, A. (2017). Analytical characterisation of the terahertz in-vivo nano-network in the presence of interference based on TS-OOK communication scheme. IEEE Access, 5, pp. 10172-10181. https://doi.org/10.1109/ACCESS.2017.2713459