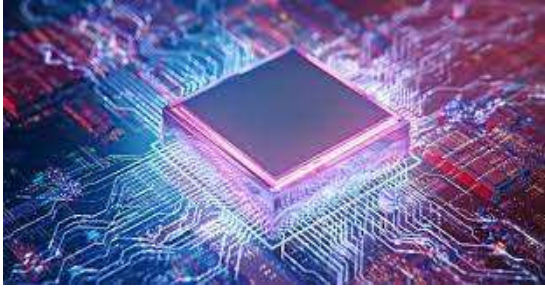


MICROCHIPS



How are microchips used in medicine?

With the objective of improving efficacy and morbidity, device manufacturers **incorporate chemicals or drugs into medical implants**. Using multiple reservoirs of discrete drug doses, microchips represent a new technology capable of on-demand release of various drugs over long periods of time. What are the benefits of microchips in healthcare?

An implanted RFID chip can be used to **quickly gain access to your medical history**: what antibiotics you've had in the past, what you're allergic to, what medication you take and any other medical information that's relevant in medical emergencies, especially when a patient is unconscious. What are microchips used for today?

Microchips **drive all of today's electronics**. Not only do these include computers, but also smartphones, network switches, home appliances, car and aircraft components, televisions and amplifiers, internet of things devices and countless other electronic systems.

What are the different types of microchips for humans?

There are two types of microchips: **active and passive**.

What is the advantage of microchip in drug development?

The designed microchip for drug delivery **allows for storage and dependable controlled release of multiple drugs**. This device is less complex and much more dependable than the aforementioned devices that attempt to control drug release rate (i.e. electro-mechanical or polymer systems).

How are microchips used in biology?

Miniaturized microchips were first used in 1995; this technology relies on the use of machines and robots in **delivering the DNA samples**. The microchip functions by getting a sample from the subject's blood and a control sample, which does not have any mutated genes, then scientists denature the DNA in the specimens.

Why are microchips useful?

A microchip **provides secure, reliable, and permanent identification**, which greatly increases the likelihood that your pet if lost, will be returned home to you. A microchip only does its job if it is registered with up-to-date contact information in a pet recovery database.

Why are microchips needed?

Semiconductors or chips are a crucial element in the manufacturing of consumer electronics such as smartphones, cameras and computers. **In cars, they are needed for everything from entertainment systems to power steering**.

What is microchip technology known for?

Microchip Technology **offers crypto element devices that provide authentication, data integrity, and confidentiality in a variety of applications, such as disposables, accessories and nodes**. The crypto element devices use ultra-secure, hardware-based cryptographic countermeasures including tamper detection.

Can humans be microchipped?

Today, more than 50,000 people have elected to have a subdermal chip surgically inserted between the thumb and index finger, serve as their new swipe key, or credit card.

What can you do with microchip?

A list of popular uses for microchip implants are as follows;

- Address book.
- Cryptocurrency wallet.
- Keycard.
- Medical history/medical records.
- Medical identification tag.
- Payment cards.
- Travel cards.
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How did the microchip change the world?

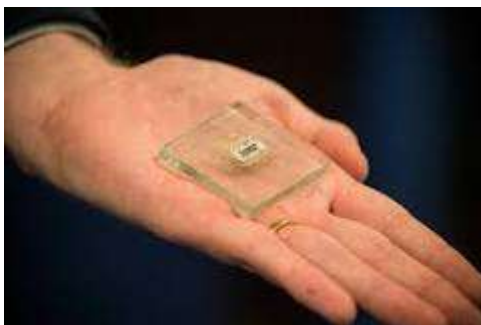
- The microchip has **made it possible to miniaturize computers, communications devices, controllers, and hundreds of other devices.** Since 1971, whole computer CPUs (central processing units) have been placed on microchips.
- What is the most common microchip?
- Most U.S. suppliers now provide **ISO standard 134.2 kHz** microchips, including Datamars, ResQ, HomeAgain, AKC, 24PetWatch, Bayer, and 911 Pet Chip.
-

What are brain microchips?

- It has been working on **a chip that can be implanted in the human brain and linked to a computer.** This chip will monitor and potentially stimulate brain activity. The chip Neuralink is developing is about the size of a coin, and would be surgically inserted into the brain using robotics by neurosurgeons.
-

What is microchip advantages and disadvantages?

- A microchip implant provides a permanent identification for your pet with which you can easily locate them. **Microchips require no maintenance or follow-up**, which is an added advantage.



The disadvantage is that there is no proper pet owner registry to help pet owners to reunite with their pets.

Cons of Microchipping

- Microchips run the risk of “traveling” in your dog, so you may need to scan the entirety of your pet's shoulder to find it.
- While this process is fast, like any injection, it's still painful for your pup. ...
- Some microchips will only work with scanners made by the same company.
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What are examples of lab on chip in medical applications?

- A lab-on-a-chip (LOC) is an automated miniaturized laboratory system used for different clinical applications inside and outside the hospital. Examples of applications include **measurements of blood gases, blood glucose, and cholesterol or counting the number of HIV cells.**
- How can organs on a chip be used in medical research?
- Organ on a chip model has shown immense usefulness in drug discovery process. It can be used for **hit-to-lead optimization, toxicological studies, physiological studies, pharmacokinetic studies and phenotyping screening** [3].
- What was the first microchip used for?
-

- Texas Instruments first used the chips in **Air Force computers and the Minuteman Missile** in 1962. They later used the chips to produce the first electronic portable calculators. The original IC had only one transistor, three resistors, and one capacitor and was the size of an adult's pinkie finger

Who makes the most microchips in the world?

- #1 Taiwan Semiconductor Manufacturing Co. Ltd. (TSM)
- #2 Intel Corp. (INTC)
- #3 Qualcomm Inc. (QCOM)
- #4 Broadcom Inc. (AVGO)
- #5 Micron Technology Inc. (MU)
- #6 NVIDIA Corp. (NVDA)
- #7 Applied Materials, Inc. (AMAT)
- #8 ASE Technology Holding Co. Ltd. (ASX)

Who wants to put chips in humans?

- **Elon Musk** wants to put chips in human brains. At a flashy “show and tell” event on Wednesday night, Musk for at least the third time said that the company is nearing human trials for his company Neuralink, which is developing implants that could connect the human brain to computers

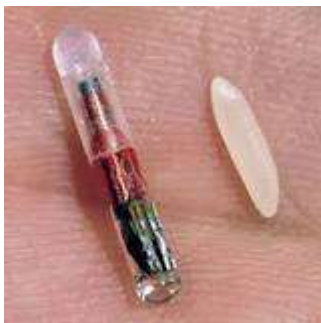
What information is stored on a microchip?

- A microchip is a subcutaneous full duplex electronic radio transponder. Modern microchips are about the size of a grain of rice and are implanted beneath the animal's skin between the shoulders. **No personal information is stored on the microchip, only the unique identification number.**

What are the side effects of microchip in humans?

Some of the key health concerns associated with microchips include:

- Adverse tissue reaction.
- Implanted transponder migration.
- Electromagnetic interference.
- Cancer risk.



Do microchips have GPS?

- **Pet microchips do not have GPS technology.** Instead, they use Radio-frequency identification (RFID) technology that is able to be scanned for information, like the pet owner's contact information. This means that microchips can't give your pet's location if they get lost, but can lead to their safe return when found.

- Who invented the first microchip for humans?
- Learn about Robert Noyce, inventor of the first practical microchip and co-founder of Intel, with a biography and collection of historical

stills.

- What year did microchipping start?
- 1989
- The pet microchip was first patented in **1985** by a California-based company called AVID, and the very first microchip to be implanted was in 1989. AVID Identification Systems was started by a veterinarian, and they are still making and selling microchips and scanners to veterinary clinics and pet shelters worldwide.



• **When were microchips for humans invented?**

- Texas Instruments is celebrating the North Texas man who made the integrated circuit – the microchip — possible. On Sept. 12, 1958, Jack Kilby, a TI engineer, invented the integrated circuit.
- What is the most advanced chip in the world?
-
- Advances in chip manufacturing require etching ever-smaller transistors on to silicon wafers. Chang said its plant in Arizona

will produce **3-nanometer chips**, TSMC's most advanced technology

• **What is the most powerful microchip?**

- M1 Ultra is the world's most powerful and capable chip for a personal computer. Cupertino, California Apple today announced M1 Ultra, the next giant leap for Apple silicon and the Mac.



• **Do Microchips expire?**

Fact: Every microchip comes in packaging with an expiration date, but that only tells the shelter or clinic how long the package will remain sterile. If the chip is planted before that date, it will stay safe and sterile. Once implanted, the microchip itself never expires.

- What is Elon Musk's brain chip?

- **WHAT IS NEURALINK DEVELOPING?** Founded in 2016 by Musk and a group of engineers, **Neuralink is building a brain chip interface that can be implanted within the skull**, which it says could eventually help disabled patients to move and communicate again, and also restore vision.

• **Can Neuralink cure blindness?**

- This would enable those with spinal cord injuries to move their limbs, and **could effectively cure paralysis, blindness**, mental illness, and neurological conditions such as Alzheimer's and dementia. The long-term ambition is for the technology to allow humans to compete with artificial intelligence.



• **Are they putting chips in people's brains?**

- Still, just last year, **the BCI startup Synchron, after gaining FDA approval in 2021, became the first company to implant a chip into a human's brain** with the goal of enabling people with severe paralysis to control computers

• **Can microchips cause health problems?**

Yes, there are risks. there have been many cases of tumors and several studies

documenting them. Research collected from 1996 to 2006 shows that . 8% to 10% of microchipped animals developed malignant tumors in the implant area

• **Can a microchip cause pain?**

- **Microchipping is a painless procedure**

Many owners naturally worry that placing a microchip inside their dog's body will hurt. In fact, the procedure takes seconds and no anesthetic is required. The chip is injected between the shoulder blades, and your dog won't feel a thing.

- **What are the advantages of brain chips?**

- The Brain chip implants **helps in interaction of patients with the computer to read the patients mind which helps in the automatic movement of paralyzed part**. The patients with complete paralyzed body can also interact by their thoughts process using this brain chip.

- **Does microchip have medical records?**

- Do Microchips contain medical information? **No. There are a few microchip registries that will let you store your pet's medical records in their systems, but nobody has access to them except you-** so you're better off just keeping that information on file or contacting your pet's primary veterinarian.

- **What is an example of smart technology in healthcare?**

- Key technologies of smart healthcare



Information technologies, for example, **IoT, mobile Internet, cloud computing, big data, 5G, microelectronics, and artificial intelligence**, together with modern biotechnology constitute the cornerstone of smart healthcare.

- **What are some examples of devices used in clinical technology?**

- From **syringes and wheelchairs to cardiac pacemakers and medical imaging technologies (such as MRI, CT and X-ray machines)**, medical devices can play a range of roles in maintaining and restoring health.

- **How does lung-on-a-chip work?**

- The lung-on-a-chip is a complex, three-dimensional model of a living, breathing human lung on a microchip. The device is made using human lung and blood vessel cells and **it can predict absorption of airborne nanoparticles and mimic the inflammatory response triggered by microbial pathogens**.

- **Can Neuralink solve autism?**

- CEO of SpaceX and Tesla Motors, Elon Musk has claimed that his neurotechnology company Neuralink can 'solve' autism and Schizophrenia with a brain chip. The claim is somewhat out of the ordinary as **there is no cure for autism spectrum disorder**.

- **How effective are organs on chips?**

- Although they are much simpler than native tissues and organs, scientists have discovered that **these systems can often serve as effective mimics of human physiology and disease**.

- **How human organs on a chip can help replace animal testing?**

- Organs-on-chip can **provide valuable insights into normal organ function and disease pathophysiology, helping to predict the safety and efficacy of new drugs**, [1]. Usually, researchers use these tools in combination with traditional preclinical cell culture methods and in vivo animal studies.

- **Why does Taiwan make all the chips?**

Why are so many semiconductors made in Taiwan? **Due to its strong OEM wafer manufacturing capabilities and comprehensive industrial supply chain**, Taiwan has been able to differentiate itself from its competitors and dominate the global market.