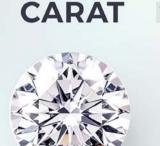
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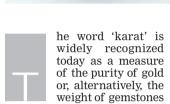
**#MEASURES** 

### Karat And Carat

The Origins and Evolution of the Word 'Karat'







that context). While the term is commonly used in the jewelry and precious metals industries, its history is rich and steeped in ancient trade, linguistic evolution, and practi-

stones. Ancient traders and

#### The Ancient Roots: Carob Seeds as a Natural Measure

The origin of the word *karat* can be traced back to the ancient Mediterranean world. It derives from the Greek word kerátion, which means 'carob seed.' The carob tree produces small, hard seeds that were prized for their remarkable consistency in size and weight. Because of this uniformity carob seeds became an ideal natural standard for weighing small quantities, especially precious materials like gold and gem-

merchants needed reliable ways to measure tiny amounts accurately, especially when dealing with valuable commodities. The use of carob seeds as a reference unit made it easier to establish fair and consistent trade practices. The concept of using a seed as a weight standard was practical and ingenious, nature providing a ready-made 'weight' that was fairly uniform world-

#### **Transition Through Languages: From Greek to Arabic**

s trade routes expand-A ed, especially during the medieval period, the concept and term spread Greek-speaking regions. Arabic merchants who were pivotal players in global trade networks spanning Europe, Africa, and Asia, adopted the term as girat. In the Arabic language, girat not only continued to denote a unit of

weight but also became

metals and stones The Arabic influence is crucial because it helped transmit the term to European traders and jewelers through the Silk Road and Mediterranean trading hubs. This linguistic journev reflects how interconnected ancient civilizations were, sharing knowledge and commerce.

intricately linked with the

measurement of precious

#### Modern Usage: *Karat* as a Measure of Gold Purity

oday, the term *karat* is predominantly used to describe the purity of gold. Pure gold is defined as 24 karats, indicating that all 24 parts out of 24 are pure gold, essentially 100% gold content. Gold that is less than 24 karats contains allovs mixed in to enhance its hardness and durability, since pure gold is soft and malleable

For example, 18-karat gold consists of 18 parts gold and 6 parts other metals (usually copper or silver), making it 75% pure gold. Similarly, 14karat gold is 14 parts gold and 10 parts other metals, about 58.3% pure. This system allows iewellers and consumers to easily understand and compare the quality and value of gold items.

#### Karat vs. Carat: Two Sides of the Same Coin

nough related, the words *karat* and *carat* have evolved to represent different concepts in the jewelry industry. While 'karat' is used to measure gold purity, 'carat' is the international unit for weighing gemstones. One carat equals 200 milligrams

(0.2 grams). Despite their slightly different spellings and uses, both terms share the same etymological root and historical background. This dual use highlights the fascinating ways language adapts and specializes in different professional fields.

#### A Word with a Global Legacy

he word *karat* has journeyed from ancient Greek traders using carob seeds to weigh gold, through Arabic merchants spreading the term across continents, to today's global jewelry markets where it serves as a universal standard of purity. This evolution mirrors the history of trade, cultural exchange, and scientific stan-

dardization. Understanding the origins of 'karat' enriches our appreciation not only of language but also of the intricate systems developed to measure and value precious materials. Whether you are buving gold iewelry or gemstones, the term 'karat' carries with it centuries of human ingenuity and crosscultural connection.



## The Magical T-reg cells

If successful, these therapies could be a game-changer. Instead of broadly suppressing the entire immune system (which current drugs do, leaving autoimmune patients vulnerable to infections), this approach offers a highly targeted way to restore the immune balance, potentially leading to a long-term cure or remission. Imagine how all these patients either will not require any medicines or an immensely reduced medication load (No insulin, oral antidiabetic agents). For cancer, the goal is the opposite of what it is for autoimmunity: researchers want to temporarily deactivate or remove the T-regs near the tumor. Thus, by moving the 'security guards' out of the way, the immune system's main 'fighting' T cells (which destroy the cancer) are unleashed, making immunotherapy much more effective.

#### b Phase 2 a Phase 1 C Phase 3 **APC** inhibition Suppressive microenvironment Longstanding tolerance Lymph node Regulatory cytokines **TGFB** Infectious tolerance CD80/86-Expansion CD39-Adenosine

Dr. Goutam Sen CTVS Surgeon

Storvteller

always look forward to the Nobel Prize Awards are usually announced in the first week of October. They are an insight on some of the amazing works that is being done in different fields of science and literature. The

Nobel Peace Prize, on the other hand, is mostly a political decision and often controversial and not acceptable to the people at large, the lesser said about it the better! The Nobel Prize given in

Physiology and Medicine is of great import. This year (2025), the work by Mary E. Brunkow, Fred Ramsdell, and Shimon Sakaguchi on regulatory T cells (T-regs), the immune system's 'security guards, is directly relevant to managing patients with both overactive (autoimmune) and underactive (low immunity) immune systems.

Let me try and explain the relevance of this profound piece of research. The discovery of peripheral immune tolerance is of major clinical importance and is actively being translated into treatments. If the transition is successful, it will be a great boon for millions of patients besides reducing the cost of healthcare in a big way.

Let us begin with its use in autoimmune diseases (overactive immunity). In diseases like Type 1 Diabetes,

A Identifying Tree cells

**D** esearchers are figuring out Now to increase the number or enhance the function of T-regs in patients. In the near future. these regimens will bring forth immense relief to a huge number of patients. This involves taking a patient's own T-regs, multiplying them in a lab, training them to target the specific area under attack (e.g., the pancreas in Type 1 Diabetes, Joints in Rheumatoid arthritis) and then injecting them back into the patient.

Rheumatoid Arthritis and Lupus, the T-reg 'security guards' are either too few or not doing their job properly. As a result, the rest of the mmune army attacks the body's healthy tissues. This brings about alarming changes in the body requiring a large armamentarium

This Nobel-winning discovery provides a direct target for new drugs by boosting the 'Security Guards.' Researchers are figuring out how to increase the number or enhance the function of T-regs in patients. In the near future, these regimens will bring forth immense relief to a huge number of patients.

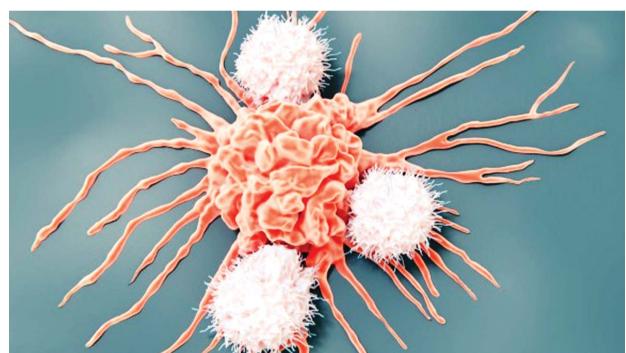
This involves taking a patient's own T-regs, multiplying them in a lab, training them to target the specific area under attack (e.g., the pancreas in Type 1 Diabetes, Joints in Rheumatoid arthritis) and then injecting them back into the patient. If successful, these therapies could be a game-changer. Instead of broadly suppressing the entire

immune system (which current

FOXP3 CNS2 demethylation at TSDR

in her forties when she decided to do a pilgrimage to Kedarnath and Badrinath. It was in those days when the trek began at Rishikesh. She walked all the way doing about fourteen miles in a day. Just ten years later, she began complaining of joint pains. It was diagnosed as Rheumatoid Arthritis (an autoimmune disease). Her treatment began with Aspirin in large doses. Her stomach reacted to it and she would often vomit blood. She was then shifted to more sophisticated drugs like Brufen, Gradually, she had visible joint involvement, and in a period of two painful decades, she was wheelchair bound and later bed-ridden. The number of medicines kept increasing and the condition continued to worsen. If therapeutically lab-produced T-reg cells could have been available, then, the last thirty years of her life would have been

**#THE NOBEL** 



different. Most people are aware

that Amitabh Bachchan has a num-

ber of maladies. Some of them

begin with the time when he was

treated for his life-threatening

abdominal injury while shooting

the movie 'Coolie.' One of his condi-

tions, which is extremely debilitat-

ing, is Myasthenia Gravis, For this,

he is on a strict medical regimen

his work as his muscles begin to sag

and even his eyelids droop. It will be

possible for patients like him to ben-

efit immensely if the T-Reg cells can

give him a targeted therapy. He

and still has to take many breaks in

Regulatory T cells in cancer immunosuppression.

drugs do, leaving patients vulnerable to infections), this approach offers a highly targeted way to restore the immune balance, potentially leading to a long-term cure or

Imagine how all these patients either will not require any medicines or an immensely reduced medication load (No insulin, oral anti-diabetic agents). My mother was an

extremely healthy lady. She was

would then become more active and also get released from a large number of medicines that he takes at the

Organ transplantation is now becoming common. The major problem of rejection is essential ly a form of severe autoimmune attack on the new The clinical solution

would require T-regs being developed to help the recipi ent's body accept the new organ The approach is similar to treating autoimmune disease. T regs can be given to the transplant patient to specifically calm the immune response against the donor

The hope is that it will then reduce or eliminate the need for immuno-suppressive drugs (this is an extremely expensive and debilitating situation), which all transplant patients currently take for life. These drugs have severe side effects, including increased risk of cancer and infec tion. T-reg therapy could allow patients to keep their new organ while maintaining a healthy, functional immune system elsewhere in the body. In the long run, it has huge economic angles, the number of hospital visits and stay will reduce considerably. Large number of bed space will be freed to take on greater

#### ow immunity (Chemotherapy/

Bone marrow disease) is an area where the discovery is least directly applied right now. T-regs are peacekeepers, they don't boost a weakened immune system. The discovery helps us understand the entire T cell family. For patients with a weak immune system (like after intensive chemotherapy or in bone marrow failure), the primary goal is to rebuild the total number of immune cells

number of patients waiting for While T-regs are good for preventing autoimmunity, their effect on cancer and low immunity is

more nuanced

Cancer cells exploit the T-regs! Tumors often recruit lots of T-regs to their location, creating an immune-privileged' zone where the security guards prevent the rest of the immune army from attacking

So, for cancer, the goal is the opposite of what it is for autoimmunity: researchers want to temporarily deactivate or remove the T-regs near the tumor. Thus, by moving the 'security guards' out of the way, the immune system's main 'fighting' T cells (which destroy the cancer) are unleashed, making immunotherapy much more effective

Those of us who have seen cancer patients during their chemotherapy and radiation will have seen the utter breakdown of their systems. They lose their appetite and energy. Loss of hair

debilitating diseases. Of course, the clinical applications are going to be difficult. But the generation of targeted T-reg cells in the laboratory is certainly a

possibility. It would then be possible to have miraculous changes in the management of many conditions.

rajeshsharma1049@gmail.com

Utopia is not far away!

and generally debilitating condition

is easy to see. In medical parlance,

the treatment aims to bring the

patient to 'the brink of death' and

then bring them back to good

health. This is the only way all can-

cer can be destroyed at the cost of

destroying a huge amount of nor-

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failure), the primary goal is to

rebuild the total number of immune

cells. Understanding how the

FOXP3 gene controls T-reg develop-

ment contributes to the overall

knowledge base that helps scientists

immune cells in the lab for thera-

pies like stem cell transplants,

not just recognising a piece of eso-

teric basic science, it's highlighting

the discovery of a master contro

mechanism in the immune system

This will provide direct practical

targets for a new generation of

sophisticated, highly specific thera-

pies for many of humanity's most

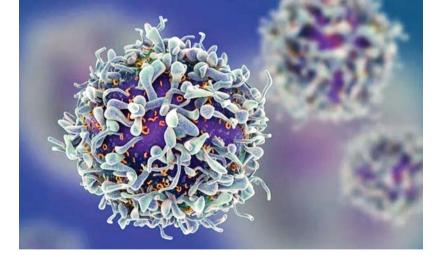
In summary, this Nobel Prize is

which is the main aim today

uccessfully grow and manage all

Low immunity (Chemotherapy)

mal tissue



Regulatory T cells exist as large, mobile population that travels through body

#### **#CHOICE**

# A Dog's Earth Connect

The Mystery, of why Dogs circle before Pooping, has been solved

or spent time with a dog, you've likely noticed a curious behavior: pooping, dogs often spin around in circles, sometimes multiple times, before finally settling down. This quirky habit has baffled pet owners and animal lovers for generations. Why do dogs feel the need to circle? Is it just a random behavior, or is there a deeper, instinctual reason behind it? For many years, dog owners have offered theories. ranging from dogs trying to flatten the grass or dirt to them simply being picky about where they relieve themselves However, until recently, there wasn't a clear scientific explanation for this behavior. That

f vou've ever owned



mystery has now been cracked thanks to fascinating new research revealing that dogs

pacing but a precise and delib-

erate search for the right

that dogs are sensitive to the

Earth's magnetic field, a natu-

migrate or orient themselves.

Dogs, it appears, also have

this magnetic sensitivity.

which manifests in a subtle

but consistent behavior dur-

ing a vulnerable moment.

This discovery suggests

#### Dogs and Earth's Magnetic Field: A Surprising Connection behavior isn't just random

A study published by researchers, who observed a number of dogs in natural settings over an extended period, discovered something remarkable. They found that dogs tend to align their bodies along the northsouth axis when they poop, avoiding an east-west alignment. In other words, dogs prefer to face either north or south while relieving them-

ral compass that many animals use for navigation. Birds, turtles, and even some mammals are known to rely on this magnetic sense to

direction.

Before settling down to poop, dogs walk in circles. likely as a way to find the perfect magnetic alignment. This

#### Why Does This Magnetic Alignment Matter?

he instinct to align with the Earth's magnetic field likely dates back to dogs' wild ancestors. In the wild, animals are vulnerable when they pause to relieve themselves. Being aligned in a certain way could help them remain alert, maintain better spatial awareness, or avoid facing potential dan-

gers. Additionally, some scientists suggest that this mag netic alignment might help dogs mark their territory more effectively. Since dogs use scent markings to communicate with other ani mals, the orientation of their body could influence how their scent is dispersed by the wind.

#### netic field to guide them during The Role of Circling **Beyond Magnetic** Alignment W hile magnetic alignment explains the direction

dogs choose, the act of circling itself may serve several practical purposes. Before pooping, dogs often turn in circles to trample down tall grass or vegetation, creating a comfortable clean spot. Circling also allows them to scan their surroundings to ensure safety from predators or threats. This instinctual behavior is

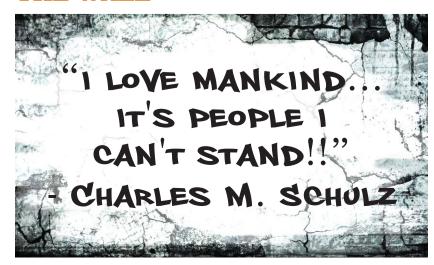
thought to be inherited from their wild ancestors, such as wolves, who needed to be cautious during moments of vulnerability. Even though domestic dogs live in much safer environments, many of these natural instincts remain embedded in their behavior.

What This Means for **Dog Owners** 



ing why dogs circle before pooping helps appreciate how deeply connected dogs are to nature, even today. The next time your dog starts circling in what seems like an endless loop. remember they're not just being quirky, they're following an ancient instinct rooted in the natural world. This newfound understanding also reminds us how much dogs rely on senses humans don't fully experience, such as magnetic sensitivity. It's a fascinating glimpse into the complexity of animal behavior and the subtle ways animals interact with their environment

#### THE WALL



#### **BABY BLUES**



#### ZITS







