



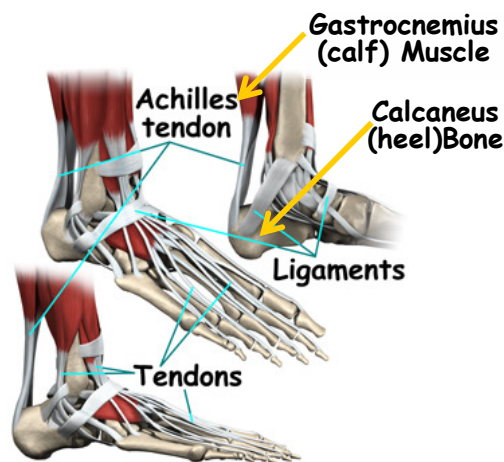
## Holiday Issue – Summary of the LTE Newsletters 2007

### July '07: Making Chocolate with Bubbles

Researchers with the Nestlé Product Technology Centre have investigated the sensory properties of 4 types of bubble-containing chocolates, produced by these different gases:

- Carbon dioxide (CO<sub>2</sub>)
- Nitrogen (N<sub>2</sub>)
- Nitrous oxide (N<sub>2</sub>O)
- Argon (Ar; Noble or inert gas)

A sensory study was undertaken by 20 non-expert panelists and their responses were analyzed using qualitative descriptive analysis.

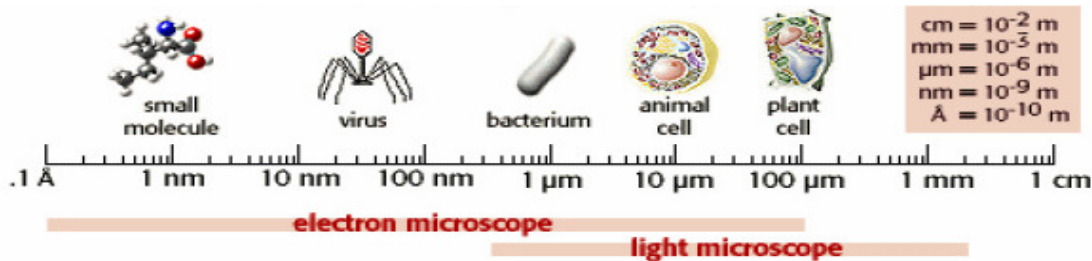


### August '07: Human Anatomy, Human Joints & Dense Connective Tissue

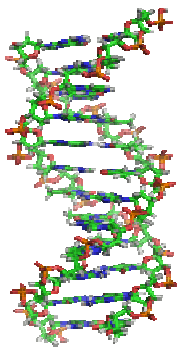
**Ligaments:** Connect bone to bone - Using a shoulder ligament as an example, if it lengthens too much, then the joint will be weakened, becoming prone to future dislocations. Bursitis is a painful shoulder joint inflammation. To prevent injuries, athletes, gymnasts, dancers, etc., will perform stretching exercises to lengthen their ligaments, making their joints more supple.

**Tendons:** Connect muscle to bone - As for the Achilles tendon it is a particularly large tendon, which connects the Calcaneus bone (heel) to the Gastrocnemius muscle (calf). It is so named because the mythic hero Achilles was said to have been killed due to an injury to this area. Tendonitis refers to specific inflammation of a tendon.

### September '07: The Relative Sizes of Cells and their Components



- Small Molecules (~1 nm)
- Viruses (~10-100nm) – protein coated, require a host cell to duplicate, contains DNA & RNA
- Bacteria (~1 μm) – Prokaryotes; lack a nuclear membrane, 3 basic types - cocci, spirilli & bacilli
- Animal Cells & Plant Cells (~10-100 μm) – Eukaryotes; both plant & animal cells possess cell & nuclear membranes, yet plant cells also have an outer rigid cell wall



## October '07: GMOs - Genetically Modified Organism

The genetic material (DNA or RNA) of a **Genetically Modified Organism** (GMO) has been altered by using a wide variety of genetic engineering techniques. They involve the removal of the nucleic acid, its manipulation outside the cell and reinsertion into the same or another organism. The aim of a GMO technique is to introduce a new or altered characteristic to the target organism for a new potential benefit or application.

Keywords:

- DNA or RNA alteration
- Genetic engineering techniques
- 'Frankenstein foods'

**November '07: Carbohydrates;** made of carbon, hydrogen and oxygen, where hydrogen & oxygen atoms are often present in a ratio 2:1.

**Sugars:** Monosaccharides; Glucose, fructose, galactose  
 Disaccharides maltose, sucrose, lactose  
 Oligosaccharides - 3-9 monosaccharide units  
 Polysaccharides - ≥10 monosaccharide units

**Cellulose:** structural polysaccharide in plant cell walls - indigestible for humans & many other animals

**Starches:** Polysaccharide in plants, e.g. in grains such as rice, wheat, barley, etc., and in animals, Glycogen (stored). Important for human nutrition – contained in breads, pastas, potatoes, etc.



## Check your understanding about Terms in Life Sciences



If you click on the **Questionnaire** link, you will find questions on the above of this Newsletter. You are invited to answer these or ask further questions yourself and send these to Steven L. Hanft, President **CONUSBAT** & Editor of the LTE Newsletter. We look forward to your replies.

## Round-the-World Life Science News & Updates

### Pharmaceutical:

**Take off Immune System brake to improve Cancer Vaccines;** Bio-Pharma Reporter, Nov. 22, 2007

A team of scientists at St. Jude Children's Research Hospital claims to have discovered a protein complex composed of Epstein-Barr-virus-induced gene 3 (Ebi3) and the p53 subunit of interleukin-12 alpha (IL-12 alpha) that is produced by regulatory T cells to suppress immune system activity.

The newly recognized complex has been dubbed interleukin-35 (IL-35) and is one of the few signaling molecules - called cytokines - that inhibits, rather than stimulates, the immune system. Given that one of the ways cancer tumors survive is through blocking immune system responses, stopping IL-35 from functioning may help kill them.

### Medical Devices:

**Beckman Coulter in Research Project for Cardiovascular Disease Markers;**

FDA News Device Daily Bulletin, Dec. 10, 2007

Beckman Coulter is the industrial partner in a

### Food & Beverage:

**Obesity rates in US seem to be leveling off;** Institute for Food Technology (IFT), Dec. 5, 2007

Obesity rates in the US seem to be leveling off, according to the latest data from the Centers for Disease Control (CDC).

After a quarter century of increases, obesity prevalence has not measurably increased in the past few years, but levels are still high at 34% of US adults aged 20 and over, according to the report, "Obesity Among Adults in the United States; No Change Since 2003-2004."

### Personal Care:

**REACH Update: Responsibilities for Manufacturers of Cosmetic Ingredients;** Dr. Annelie Struessmann, Technical Director, **CONUSBAT**, C&T, Allured Publishing, Dec. 5, 2007

Ingredients in the personal care industry have to comply with all provisions of REACH; no general exemption applies. However, ingredients often fall under exemptions

two-year research project to discover genetic signatures for cardiovascular disease (CVD) and obesity-related hypertension.

The company said it would have exclusive license to commercial application of the results, which will be used to develop content for the company's molecular diagnostics platform.

#### **Medical R&D:**

#### **Health Study shows why Influenza Virus ('the Flu') likes the Winter Season;**

NY Times, Dec. 5, 2007

Researchers in New York believe they have solved one of the great mysteries of the flu: Why does the infection spread primarily in the winter months?

The answer, they say, has to do with the virus itself. It is more stable and stays in the air longer when air is cold and dry, the exact conditions for much of the flu season. Dr. Palese published details of his findings in the Oct. 19 issue of PLoS Pathogens.

specifically described in the various articles and annexes of the REACH regulation. Therefore, before pre-registration or registration, the following sections of the regulation have to be researched carefully, as many substances described here are used as personal care ingredients

- Annex IV – substances causing minimum risks
- Annex V – substances occurring in nature
- Article 15 - Substances regarded as being registered including biocidal products
- Provisions for polymers and monomers

If you have questions towards REACH, pls. contact CONUSBAT.

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