

Bio 2113 Lab Study Guide

Digital microfluidics

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Digital microfluidics (DMF) is a platform for lab-on-a-chip systems that is based upon the manipulation of microdroplets. Droplets are dispensed, moved, stored, mixed, reacted, or analyzed on a platform with a set of insulated electrodes. Digital microfluidics can be used together with analytical analysis procedures such as mass spectrometry, colorimetry, electrochemical, and electrochemiluminescence.

Diagnosis of tuberculosis

Challenges and opportunities”*. Lung India. 29 (3): 259–66. doi:10.4103/0970-2113.99112. PMC 3424866. PMID 22919166. Medical Examination of Aliens (Refugees*

Tuberculosis is diagnosed by finding *Mycobacterium tuberculosis* bacteria in a clinical specimen taken from the patient. While other investigations may strongly suggest tuberculosis as the diagnosis, they cannot confirm it.

A complete medical evaluation for tuberculosis (TB) must include a medical history, a physical examination, a chest X-ray and microbiological examination (of sputum or some other appropriate sample). It may also include a tuberculin skin test, other scans and X-rays, surgical biopsy.

Droplet-based microfluidics

PDMS microfluidic chip: confocal surface-enhanced Raman spectroscopic study; *Lab on a Chip*. 5 (4): 437–42.
doi:10.1039/b414457k. PMID 15791342. Cecchini

Droplet-based microfluidics manipulate discrete volumes of fluids in immiscible phases with low Reynolds number (< 2300) and laminar flow regimes. Interest in droplet-based microfluidics systems has been growing substantially in past decades. Microdroplets offer the feasibility of handling miniature volumes (μL to fL) of fluids conveniently, provide better mixing, encapsulation, sorting, sensing and are suitable for high throughput experiments. Two immiscible phases used for the droplet based systems are referred to as the continuous phase (medium in which droplets flow) and dispersed phase (the droplet phase), resulting in either water-in-oil (W/O) or oil-in-water (O/W) emulsion droplets.

University of California, Berkeley

budget; principal repayment begins in 2032 and is scheduled to conclude in 2113. On May 1, 2014, Berkeley was named one of fifty-five higher education institutions

The University of California, Berkeley (UC Berkeley, Berkeley, Cal, or California) is a public land-grant research university in Berkeley, California, United States. Founded in 1868 and named after the Anglo-Irish philosopher George Berkeley, it is the state's first land-grant university and is the founding campus of the University of California system.

Berkeley has an enrollment of more than 45,000 students. The university is organized around fifteen schools of study on the same campus, including the College of Chemistry, the College of Engineering, College of Letters and Science, and the Haas School of Business. It is classified among "R1: Doctoral Universities – Very high research activity". Lawrence Berkeley National Laboratory was originally founded as part of the university.

Berkeley...

Hallucinogen

Drugs: Past, Present, and Future ". *Neuropsychopharmacology*. 42 (11): 2105–2113. doi:10.1038/npp.2017.84. PMC 5603818. PMID 28443617. Weaver, Michael F.;

Hallucinogens, also known as psychedelics, entheogens, or historically as psychotomimetics, are a large and diverse class of psychoactive drugs that can produce altered states of consciousness characterized by major alterations in thought, mood, and perception as well as other changes. Hallucinogens are often categorized as either being psychedelics, dissociatives, or delirants, but not all hallucinogens fall into these three classes.

Examples of hallucinogens include psychedelics or serotonin 5-HT_{2A} receptor agonists like LSD, psilocybin, mescaline, and DMT; dissociatives or NMDA receptor antagonists like ketamine, PCP, DXM, and nitrous oxide; delirants or antimuscarinics like scopolamine and diphenhydramine; cannabinoids or cannabinoid CB₁ receptor agonists like THC, nabilone, and JWH-018...

Abiogenesis

Meteorites ". *Elements*. 7 (1): 35–40. Bibcode:2011Eleme...7...35M. doi:10.2113/gselements.7.1.35. Martins, Zita; Botta, Oliver; Fogel, Marilyn L.; et al

Abiogenesis is the natural process by which life arises from non-living matter, such as simple organic compounds. The prevailing scientific hypothesis is that the transition from non-living to living entities on Earth was not a single event, but a process of increasing complexity involving the formation of a habitable planet, the prebiotic synthesis of organic molecules, molecular self-replication, self-assembly, autocatalysis, and the emergence of cell membranes. The transition from non-life to life has not been observed experimentally, but many proposals have been made for different stages of the process.

The study of abiogenesis aims to determine how pre-life chemical reactions gave rise to life under conditions strikingly different from those on Earth today. It primarily uses tools from...

Curium

(9–10): 2113. doi:10.1016/j.poly.2008.04.002. Heller, Anne; Barkleit, Astrid; Bernhard, Gert; Ackermann, Jörg-Uwe (2009). *“Complexation study of europium(III)*

Curium is a synthetic chemical element; it has symbol Cm and atomic number 96. This transuranic actinide element was named after eminent scientists Marie and Pierre Curie, both known for their research on radioactivity. Curium was first intentionally made by the team of Glenn T. Seaborg, Ralph A. James, and Albert Ghiorso in 1944, using the cyclotron at Berkeley. They bombarded the newly discovered element plutonium (the isotope ²³⁹Pu) with alpha particles. This was then sent to the Metallurgical Laboratory at University of Chicago where a tiny sample of curium was eventually separated and identified. The discovery was kept secret until after the end of World War II. The news was released to the public in November 1947. Most curium is produced by bombarding uranium or plutonium with neutrons...

Cannabis (drug)

September 2015). *“Marihuana prensada: El lado negro de la hierba canábica”*. BioBioChile (in Spanish). Retrieved 17 June 2021. Wicht, J. J. (1991). *Por un Perú*

Cannabis (), commonly known as marijuana (), weed, pot, and ganja, among other names, is a non-chemically uniform psychoactive drug from the Cannabis plant. Native to Central or South Asia, cannabis has been used as a drug for both recreational and entheogenic purposes and in various traditional medicines for centuries. Tetrahydrocannabinol (THC) is the main psychoactive component of cannabis, which is one of the 483 known compounds in the plant, including at least 65 other cannabinoids, such as cannabidiol (CBD). Cannabis can be used by smoking, vaporizing, within food, or as an extract.

Cannabis has various mental and physical effects, which include euphoria, altered states of mind and sense of time, difficulty concentrating, impaired short-term memory, impaired body movement (balance and...

Glossary of artificial intelligence

Intelligence ". *Mind*. 59 (236): 433–460. doi:10.1093/mind/LIX.236.433. ISSN 1460-2113. JSTOR 2251299. S2CID 14636783. polynomial time refers to how quickly the

This glossary of artificial intelligence is a list of definitions of terms and concepts relevant to the study of artificial intelligence (AI), its subdisciplines, and related fields. Related glossaries include Glossary of computer science, Glossary of robotics, Glossary of machine vision, and Glossary of logic.

Cancer immunotherapy

maintain tumor tolerance ". *The Journal of Experimental Medicine*. 212 (12): 2095–2113. doi:10.1084/jem.20150304. PMC 4647263. PMID 26527801. Guittard G, Dios-Esponera

Cancer immunotherapy (immuno-oncotherapy) is the stimulation of the immune system to treat cancer, improving the immune system's natural ability to fight the disease. It is an application of the fundamental research of cancer immunology (immuno-oncology) and a growing subspecialty of oncology.

Cancer immunotherapy exploits the fact that cancer cells often have tumor antigens, molecules on their surface that can bind to antibody proteins or T-cell receptors, triggering an immune system response. The tumor antigens are often proteins or other macromolecules (e.g., carbohydrates). Normal antibodies bind to external pathogens, but the modified immunotherapy antibodies bind to the tumor antigens marking and identifying the cancer cells for the immune system to inhibit or kill. The clinical success...

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