

Central laboratory Instruments

(A) Chemistry and Physics Unit

1- Atomic Force Microscope (AFM)



Application: Study the surface morphology of Polymer

2- Gel Permeation Chromatography (GPC)



Application: Molecular weight Determination of Polymers

3- Zetasizer



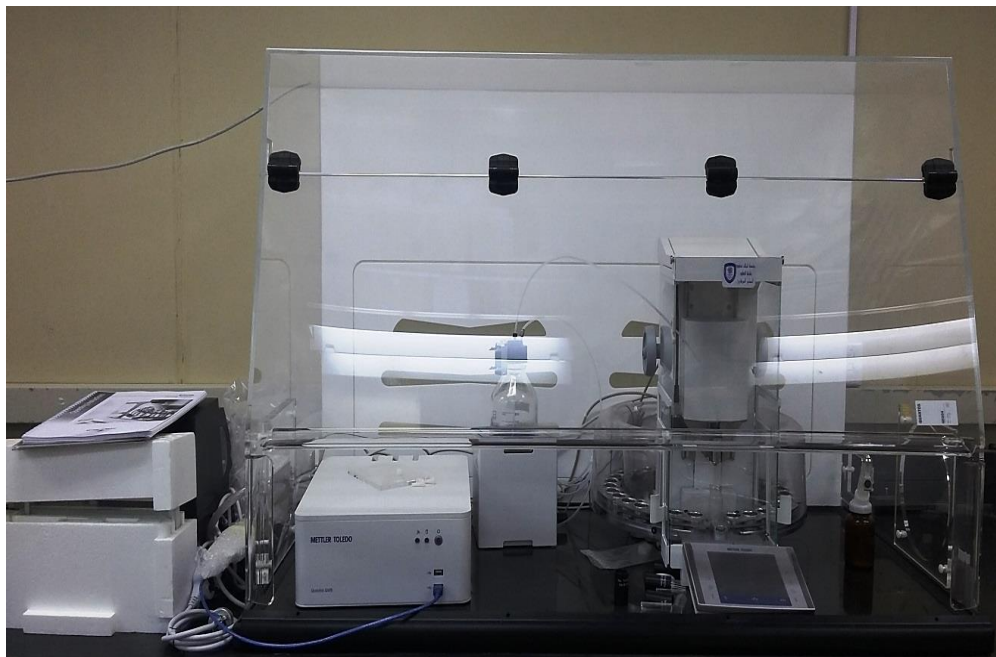
Application: Measurement of size in Nano range and Zeta Potential

4- Mastersizer



Application: Measurement of size in micro range

5- Robotic Balance



Application: Weight measurement of series of samples

6- Elemental Analyzer (CHN)



Applications: Elemental analysis like C, H, N, O, S in percentage

7- Dynamic mechanical Analyzer (DMA)



Applications: Determination of the Mechanical strength of Polymer sample with temperature

8- Thermo-mechanical Analyzer (TMA)



Application: Determination of the linear expansion coefficient of polymer samples

9- Thermo-gravimetric analysis (TGA)



Application: Determination of mass changes on heating (Temp. range 25 to 1600°C)

10-Thermo-gravimetric analysis (TGA)



Application: Determination of mass changes on heating (Temp. range 25 to 1000°C)

11-Differential Scanning Calorimetry (DSC)



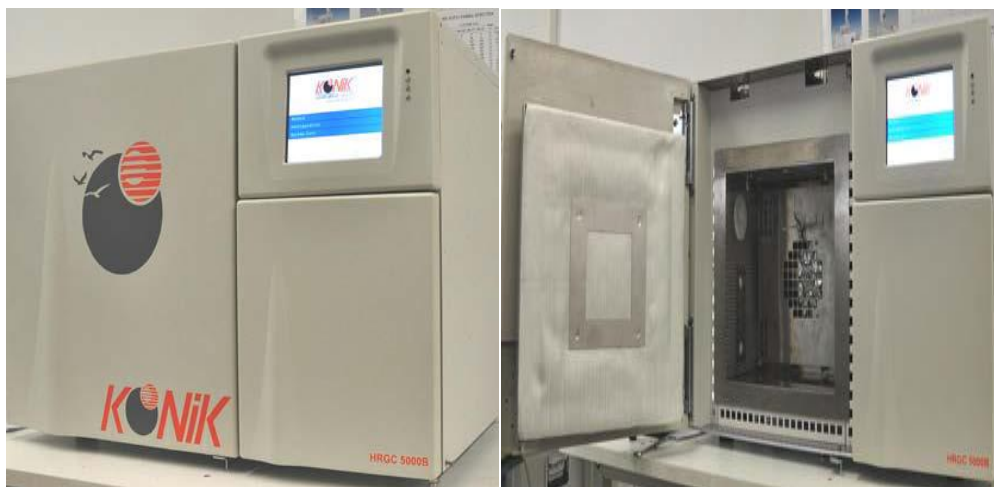
Application: Measurement of glass transition temperature

12-AutoChem Analyzer



Applications: Temperature-Programmed Desorption, Reduction, Oxidation and Pulse Chemisorptions

13-Gas Chromatography-Mass Spectrometry



Applications: Separation and molecular information of semi volatiles, volatiles compounds, alkaloids, drugs, pesticides, herbicides, hydrocarbons, aromas, solvents, isomers alcoholic drinks.

14-ICP-MS: Inductive Coupled Plasma- Mass Spectrometer



Applications: The determination of metallic species in waters, soils samples, foodstuffs....

15- XRD



Application: Qualitative analysis of powder samples

16- Single Crystal



Application: Determine the properties of crystals

17-XRF



Application: Qualitative and quantitative analysis of elements

18-Time of Flight Mass Spectrometer



Application: Exact mass measurement

19-Gamma Cell



Application: Irradiation of samples

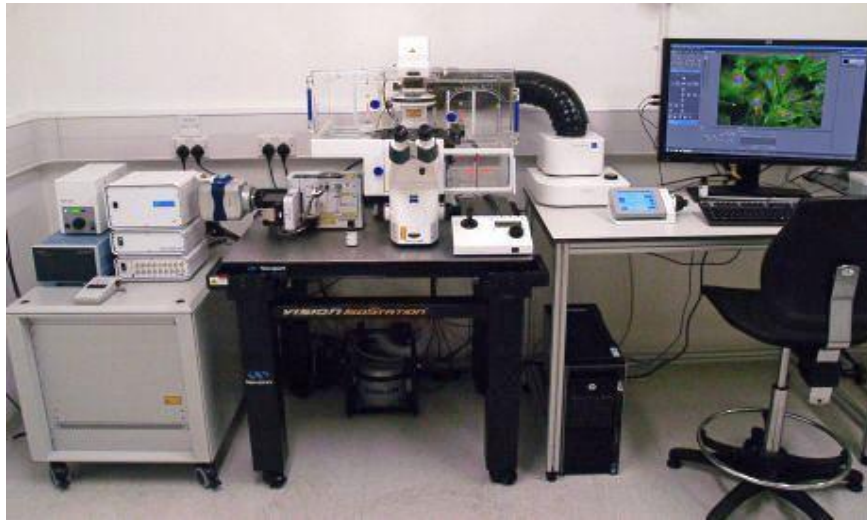
20- NMR spectrometer



Applications: To determine 1D Experiments (^1H , ^{13}C , DEPT, NOE), 2D Experiments (COSY, NOESY, HMBC, HMQC, and HSQC), Solid-state NMR (CPMAS, DDMAS)

(B) Life Sciences Unit

1- Spinning Disk Confocal Microscope



Applications: Analysis of fluorescence labeled mammalian/bacterial cells.

2- BIO-SAFETY Cabinet (Laminar air flow)



Application: Provide a sterile environment needed for the culturing of mammalian/bacterial cells

3- CO₂ Incubator



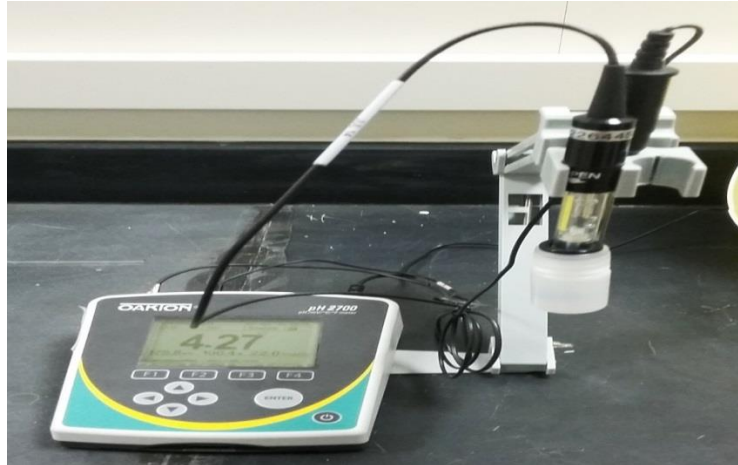
Application: Provides an optimal growth condition for mammalian cells with adjustable CO₂ levels.

4- Water Bath



Application: Provides heated water of required temperature, necessary for reactions or experiments requiring specific temperature.

5- pH METER



Applications: To check the pH of solutions and buffers

6- Micro centrifuge



Applications: Centrifuge Eppendorf tubes to a maximum of 15000 RPM

7- Cooling Centrifuge (Megafuge)



Applications: To centrifuge samples in a 15/50 ml falcon tube. Maximum speed that can be attained is 15200 RPM. Also temperature can be set from 4°C to 40°C

8- Deep freezer (-80°C)



Application: Long time storage of cells (mammalian/bacterial) at -80°C as glycerol stocks

9- Luminex-Milliplex Analyzer



Application: The Luminex system can analyze immunoassays, complex genetic analysis, and enzymatic assays.

10- BioRad Chemi Doc System



Application: The ChemiDoc MP system is an instrument for gel or western blot imaging. It is designed to address fluorescent western blotting, chemiluminescence detection, and general gel documentation applications.

11- CFX 96 Real-Time PCR detection system and Thermal Cycler



Application: PCR reactions and quantitatively measure the amplification of DNA using fluorescent probes.

12-BioRad Trans-Blot Turbo Transfer System



Application: Trans-Blot Turbo Transfer System is a high-performance western blotting transfer system that transfers protein blots with high efficiency.

13- Veolia-Purelab flex Water purifier



Application: Supplies purified water

14- BioRad PR 3100 TSC Microplate Reader and PW 41 Microplate Washer



Application: Microplate reader instrument is used to detect biological, chemical or physical events of samples in microtiter plates.

15-Hanil-Ultra refrigerated centrifuge



Application: Centrifuge with maximum rotating speed: 50,000 rpm (254,345xg) is useful in molecular biology, biochemistry, and polymer science experiments.

16-LabTech - Autoclave / Steam Sterilizer



Application: Application of autoclave is in the sterilization of laboratory glassware, microbial media, surgical instruments and medical waste.

17- Ice Maker



Application: Provides ice cubes

18- Cryomech-Liquid Nitrogen generator



Application: Liquid Nitrogen

19- Mindray BS-200 Chemistry Analyzer



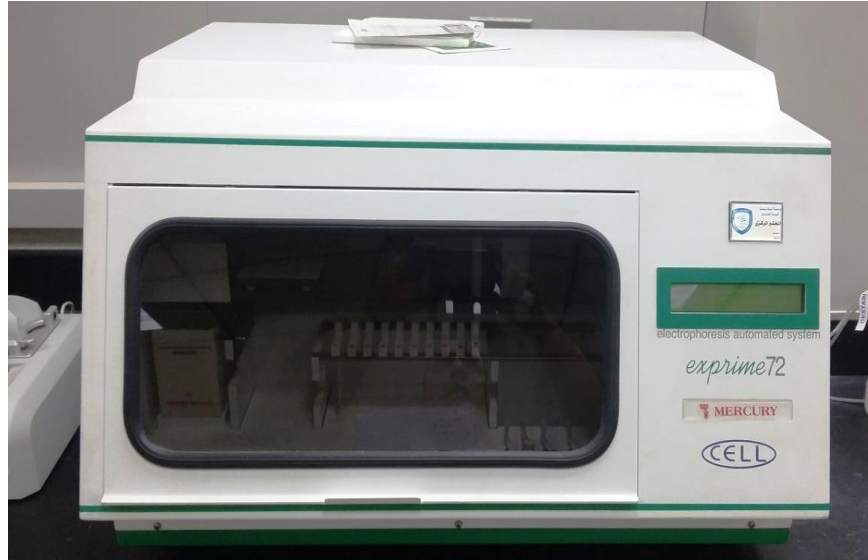
Application: Chemistry Analyzer useful to measure different chemicals and other characteristics in a number of biological samples.

20- Thermo-Nanodrop 8000 Spectrophotometer



Application: Thermo Scientific NanoDrop spectrophotometers is useful to measure the chemicals in small volume of samples around one micro liter within 30 seconds.

21- Mercury-Cell- Electrophoresis Automated System



Application: Electrophoreses multiple gels for separation of protein and nucleic acid samples.

22- SFRI-H 18 Light-Blood Cell Counter



Application: Analyses blood cell parameters like WBC count, RBC count and Platelet Count.

23- TEM Tissue Processing Machine



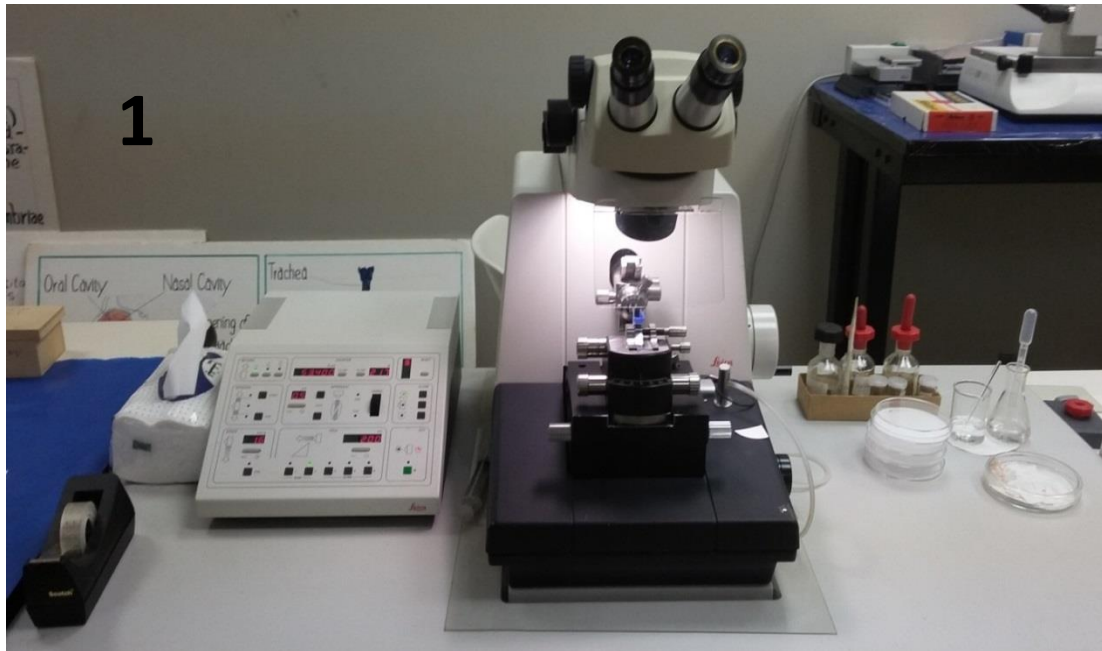
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Application: Automatic processing of tissue

24- Specimen trimming device for TEM



Application: A high speed milling system for trimming of biological and industrial samples prior to ultramicrotomy.

25- Leica UC6 Ultramicrotome



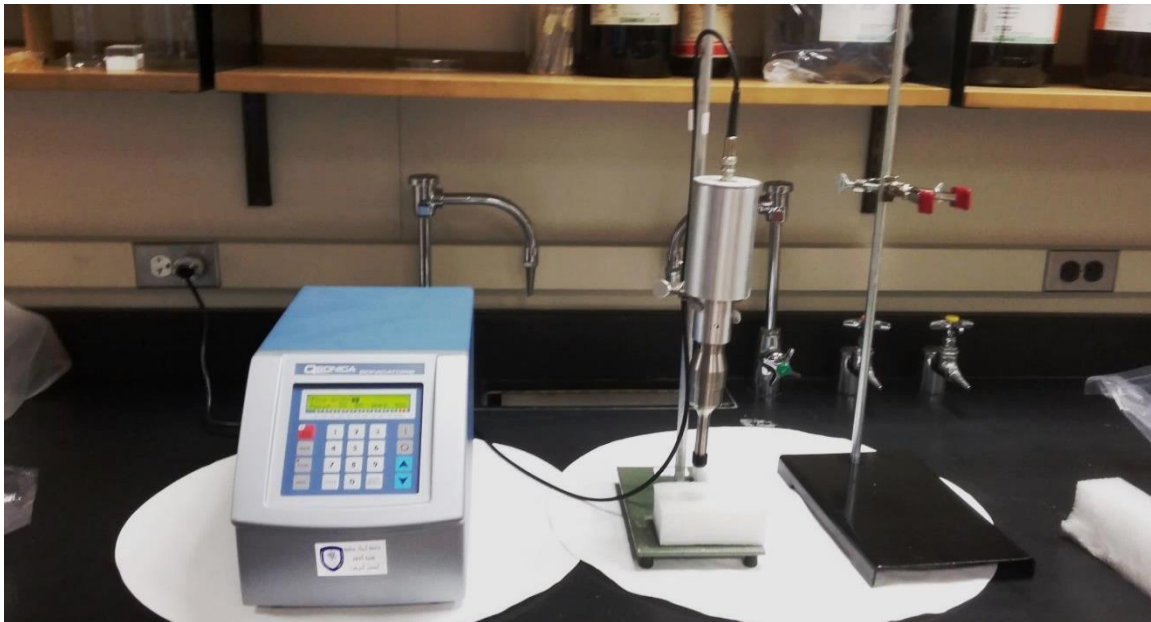
Application: This ultramicrotome is designed for cutting ultra-thin sections (<100nm) of sample embedded in resin, using glass or diamond ([Diatome, Switzerland](#)) knives.

26-Leica EM KMR glass knife maker



Application: The glass knife maker produces 45° glass knives from 6.4 and 8 mm thick glass.

27- The ultrasonic probe



Application: The ultrasonic probe is used for the dispersion of nanotubes, nanowires and nanoparticles in small liquid volumes.

28- Transmission Electron Microscope (TEM)



Application: The TEM-1011 is a high performance, high contrast, 100 kV TEM with excellent imaging, easy-to-use instrument with an acceleration voltage of 40 to 100 kV. TEM has been used in all areas of biological and biomedical investigations.

29- Scanning Electron Microscope (SEM)



Application: The jsm-6380LA is used in many and varied applications with several options that increase its versatility and can be expanded to an analytical SEM by the addition of optional eds and/or wds