Tikrit University
College of Veterinary Medicine.

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Lect.5.

SEM

They are images produced by scanning it with a focused beam of electrons.

Electrons interact with atoms in the sample, producing various signals that contain information about the surface topography and composition.

The electron beam is generally scanned using raster scanning and the location of the beam is combined with the signal to produce an image.

The most common scanning electron microscope technique is to detect secondary electrons emitted by atoms excited by an electron beam.

The number of secondary electrons that can be detected depends, among other things, on the topography of the sample.

By scanning the sample and collecting the secondary electrons that are emitted using a special detector, an image is created that displays the surface topography.

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Featured home page SEM

Use a packageA narrow electronic beam to scan the biological _ model.

This beam moves forward and backward as it crosses the examined body, which will emit secondary electrons that are used to form the image.

That is, the sample causes the secondary electrons to reflect and can be used to produce the image.

When using a scanning electron microscope, the image appears in three dimensions, where the outer surface of the cells can be examined.

The electron microscope contains the tools that produce electrons and are used to scan the sample to be examined.

These electrons are represented by the released electron cannon and pass through the column completely emptied of air so as not to impede the passage of the electrons.

When the beam arrives, it collides with the sample to be examined, producing several radiations, including secondary electrons responsible for producing the image.

The image, and any difference in the density of the secondary electrons emitted by the sample, shows us a difference in the sparkle on the screen.

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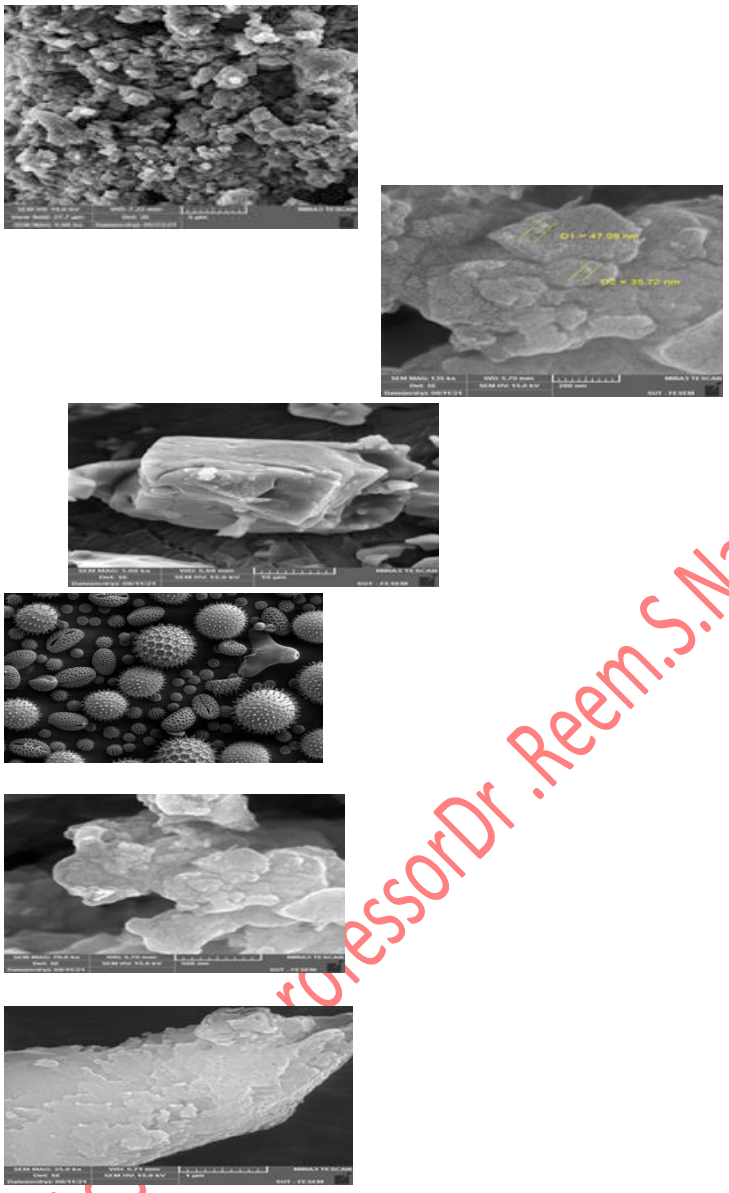

Fig SEM

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Delivering the drug to the tissues

Nano medicine is considered one of the most important fields of application of nanotechnology, and even the greatest of all, due to its direct connection to human life and health.

The recent development in nanotechnology has helped change the medical rules used in preventing, diagnosing, and treating diseases, and we are now living in the era of nonmedical technology, as nanotechnology provides new methods for drug carriers within the human body, capable of targeting different cells in the body.

Drug delivery to tissues is one of the research priorities in the field of Nano medicine, as it depends on the manufacture of fine nanomaterial's that improve the bioavailability of the drug(Bioavailability) .

This means that the drug molecules are present in the targeted place in the body, where they work most effectively, thus reducing the rate of drug consumption, reducing its side effects, as well as the total cost of treatment.

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Pharmaceutical scientists continue Manufacturing systems consisting of Nano polymers to deliver medicine to the areas to be reached, usually living cells themselves.

This goal is very important, because many diseases occur as a result of a defect within the cell itself.

Likewise, some medications can be given to the patient while they are inactive and active in the affected areas only to avoid the negative effect of the drug on some tissues.

Therefore, one of the most important duties of nan medicine will be to manufacture new medications that are more beneficial, have greater benefit, and have fewer side effects.

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How nanotechnology has increased medical applications using stem cells.

The development of nanotechnology has contributed to changing the medical rules used to prevent, diagnose and treat diseases, and we are now living in the era of nonmedical technology. Nanotechnology provides new methods for drug carriers inside the body (Nano carriers with sizes reaching the Nano scale) that are able to target different cells in the body.