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| **Week** | **Description depends on the Timing table(Practical)** |
| **1** | Introduction of viruses |
| **2** | Methods of Classification the Virus |
| **3** | Animal viruses |
| **4** | Plant viruses |
| **5** | Electron microscope |
| **6** | Interferon |
| **7** | Virus cultivation and culture in vitro |
| **8** | Estimate the concentration of viruses |
| **9** | Virus Purification |
| **10** | Enzyme Linked Immuno Sorbent Assay ( ELISA ) |
| **11** | Phages isolated from the environment ( Bacteriophage ) |
| **12** | The impact of viruses on infected cells |
| **13** | Examine ways and embryo egg injected By Virus |
| **14** | Avian Influenza ( Bird flu ) H5N1 |
| **15** | Examination |

**Lab -1**

**Introduction of viruses:**

Virus:Particales composed of core which containing either DNA or RNA (not both) , covered by protein coat called capsid, some viruses have outer lipoprotein membrane called an envelope.

**Properties of virus , Capsid , Envelop , Viriods , prions , spikes , Capsid symmetry.**

**Lab -2**

**Methods of Classification the Virus:**

1. **Nature of host.**
2. **Type of nucleic acid.**
3. **Diseases caused or special clinical feature.**

**Lab -3 , Lab -4**

**The Classification of Virus Families**

* **Animal viruses:**

**1-**Caliciviridae **2-**Arenaviridae **3-**Bunyaviridae **4-**Picornaviridae **5-**Adenoviridae **6-**Papillomaviridae **7-**Herpesviridae **8-**Poxviridae **9-**Hepadenaviridae **10-**Retroviridae **11-**Rhabdoviridae **12-**Paramyxoviridae **13-**Orthomyxoviridae **14-**Reoviridae **15-**Coronaviridae

* **Plant viruses:**

**Tobacco Mosaic** **viruses (T.M.V).**

**Lab -5**

**Electron microscope**

The electron microscope is a type of microscope that uses a beam of electrons to create an image of the specimen.

**Type of electron microscope:**

* Transmission electron microscope (TEM).
* Scanning electron microscope (SEM).

**Sample Preparation.**

**Disadvantages of electron microscope.**

**Lab -6**

**Interferon**

Are proteins made and released by host cells in response to the presence of pathogens such as viruses , bacteria , parasites or tumor cells.

**Type of Interferon**

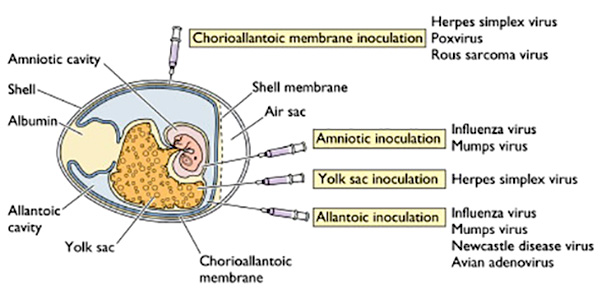
IFN-α , IFN-β

**Function of Interferon**

**Interferon therapy**

**Lab -7**

**Virus cultivation and culture in vitro**



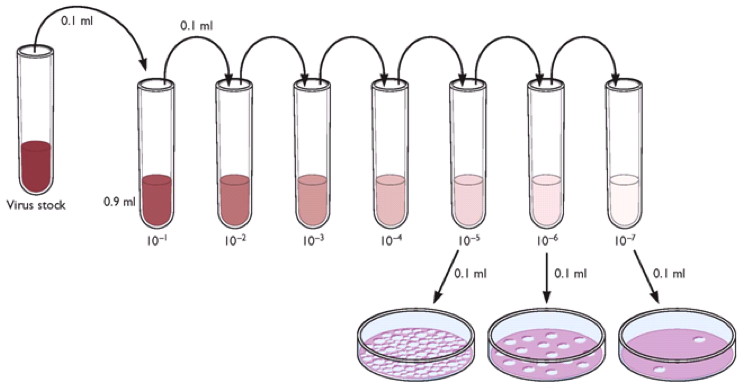
**Lab -8**

**Estimate the concentration of viruses**

**Calculated** **concentration (PFU) = Number of plaque × Inverted dilution**

**Plant leaf area cm2**

**Detecting viruses: the plaque assay**



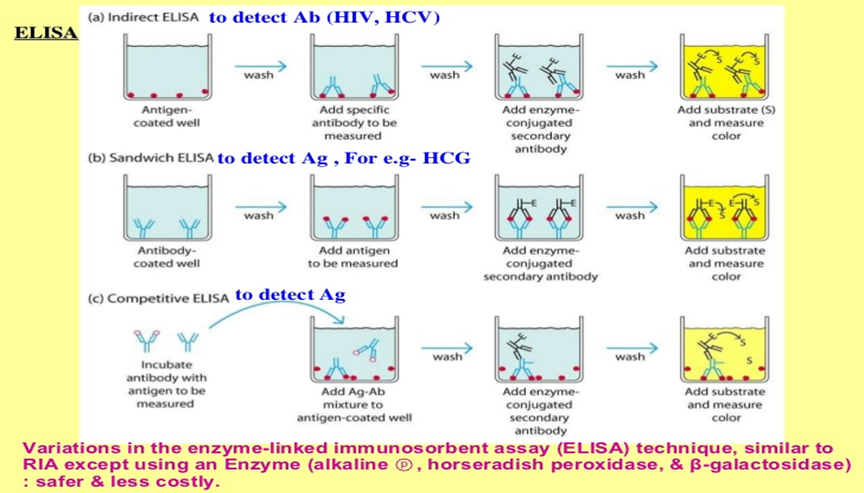
**Lab -9**

**Virus Purification**

* **Differential centrifugation:**
* **Density gradient** **centrifugation:**
* **Purification by organic solvents:**

**Lab -10**

**Enzyme Linked Immuno Sorbent Assay ( ELISA )**



**الجامعة المستنصرية**

**كلية العلوم**

**قسم علوم الحياة**

**اسم المادة العلمية : الفايروسات العملي**

**المرحلة : الثانية**

**العام الدراسي :2015 - 2016**

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**تقسيم الساعات حسب المجاميع الطلابية**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **اسماء** **التدريسيين** | **الوقت** | | | | **يوم الاثنين** |
| 1. م . اشرف سامي حسن 2. م .م. محمد توفيق عبد الحسين 3. م . فراس نبيه جعفر 4. م . م ميسون خليفه | 2.50-1.20 | 1.20-11.50 | 11.30-10.0 | 10.0-8.30 |
| A2 مجموعة | A1 مجموعة |  |  | **يوم الثلاثاء** |
| C2 مجموعة | C1 مجموعة | B2 مجموعة | B1 مجموعة |