

Factors affecting carcinogenesis

- ▶ These factors can be divided into three main groups:
 - ▶ Environmental Toxins
 - ▶ chemical
 - ▶ physical (e.g. radiation)
 - ▶ Dietary
 - natural products found in spices, etc.
 - additives (rarely)
 - ▶ Lifestyle
 - hormonally-mediated
 - other

Chemicals Generally Recognized as Carcinogenic in Humans

Industrial Exposures

Benzidine **Urinary Bladder**

Vinyl Chloride **Liver**

Certain tars **Skin and**

Asbestos **Peritoneum (lungs when combined with cigarette smoking)**

Benzene **Lymphoid Tissue**

Other Exposures

Diethylstilbestrol **Vaginal**

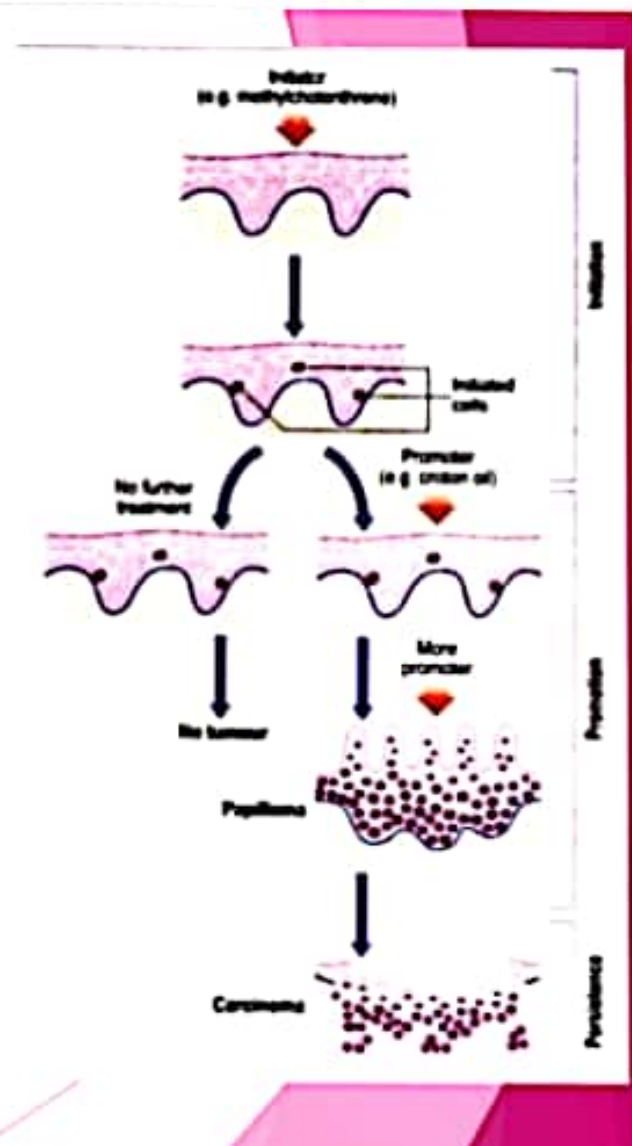
Arsenic Compounds **Skin cancer**

Cigarette Smoke **Lungs, urinary tract**

Betal Nut **Buccal Mucosa**

Carcinogenesis

- ▶ **Initiation**
 - ▶ DNA damage eg. Benzpyrene
- ▶ **Promotion**
 - ▶ Histologic change - eg. Turpentine (co-carcinogens)
- ▶ **Malignant transformation:**
 - ▶ Visible tumor formation - further DNA damage.



CARCINOGENESIS: ETIOLOGY and PATHOGENESIS OF CANCER

- pathogenesis of cancer undergoes in the following 4 mechanism
 - **Molecular pathogenesis of cancer (genes and cancer)**
 - **Chemical carcinogens and chemical carcinogenesis**
 - **Physical carcinogens and radiation carcinogenesis**
 - **Biologic carcinogens and viral oncogenesis.**

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