1) Proper connective tissue

a) loose → gel-like matrix with all three types of fibres it wraps and cushions organs.
It is the most widely distributed type of C.T.
ADIPOSE tissue is loose c.t. Very sparse matrix, closely packed adipocytes. It provides food reserve, insulation support and protection of organs.

b) dense → major cell type is fibroblast. Very rich in fibres which are tightly packed (if they run parallel, the tissue is called REGULAR, i.e. tendon and ligaments which are mainly made up of collagen but ligaments have a 1% of elastin. If you stretch a ligament >6% it will never go back to its shape).

→ Dense irregular has irregularly arranged collagen fibres. Provides structural strength able to undergo tension in many directions

2) Specialized connective tissue

CARTILAGE

a) Hyaline cartilage: amorphous but firm matrix. cells are called CHONDROCYTES which lay in spaces called LACUNAE.
The ground substance has the same RI of fibres are not visible upon normal staining.
Most of embryonic skeleton; covers ends of long bones in joint cavities. Forms costal cartilage part of the ribs.
It supports and reinforces, with resilient cushioning properties.

N.B. osteoarthritis → wrongly thought to affect bones, but is instead degeneration of hyaline cartilage at early stages, it can be reversed or slowed down by administering GLUCOSAMINE (1000mg per 3 months)

b) elastic cartilage → similar to hyaline cartilage but with more elastic fibres than collagen fibres. It maintains the shape of a structure while allowing flexibility
Supports the external ear (pinna), epiglottis

c) fibro-cartilage → matrix similar to hyaline, but less dense. Tensile strength with the capacity of absorbing compressive shock
Present in intervertebral discs, pubic symphysis, discs of knee joints.

N.B. prolapsed disks → can cause back and leg pain (SCIATICA) if it touches the sciatic nerve.

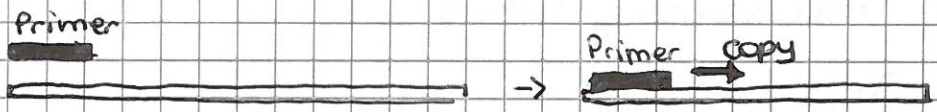
HYBRIDIZATION (or Renaturation)

conditions to induce hybridization:
- heat (preferred) once the heat is stopped, DNA can reanneal (95°C)
- alkali (pH)

Complementary sequences:

- DNA/DNA
- RNA/RNA
- DNA/RNA

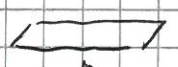
used to 'prime' templates e.g. as a starting point to copy DNA or RNA



used as a detection method e.g. Southern or northern hybridization

TRANSCRIPTOMICS

RNA extraction



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c DNA synthesis

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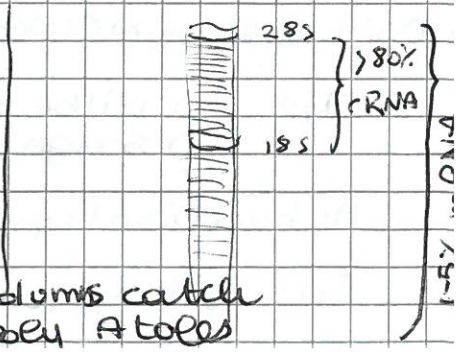
Detection

- RNA extraction using guanidine thiocyanate / phenol
  - RNA prone to degradation
  - Homogenite tissue / suspend cells in Tri
  - Centrifuge to remove insoluble cell debris, lipids and polysaccharides
  - Add chloroform, mix and centrifuge
  - Precipitate RNA in isopropanol
  - Wash in ethanol
  - Redissolve in pure water



oligo dT columns catch the mRNA poly A tales

rising of cervical carcinoma can reach 20-30 years.
Most people with HPV do not develop symptoms or health problems from it. In 90% of the cases the body's immune system clears HPV within two years.
But there is no way to know which people will develope health problems.
Different types of HPV cause different health problems
Sex. transmitted HPVs fall into two categories:

- **Low-risk HPVs** → do not cause cancer, but can cause skin warts on or around the genitals or anus. They can also, but rarely, cause the insurgence of warts in the throat, a condition called RECURRENT RESPIRATORY PAPILLOMATOSIS (RRP). The HPV types 6 and 11 are responsible for ≈ 90% of the health problems caused by low risk HPVs.
- High-risk or oncogenic HPVs can cause cancer. Most high-risk HPV infections are showing no symptoms and clear out within two years. But persisten high-risk infections can lead to cause more serious cytologic abnormalities or lesions that, if untreated, may progress to cancer. At least a dozen high-risk HPV types have been identified, two of which, HPV-16 and HPV-18, account for the majority of HPV-caused cancer

- The only sure way to avoid contracting HPV is not having sex at all. But for those who are sexually active there are ways to lower chances to contract the infection

  - VACCINES
  - correct use of CONDOMS
  - limited number of PARTNERS