Abstract ID: MRCHS038

Antibacterial Properties of Amniotic Membrane: A review

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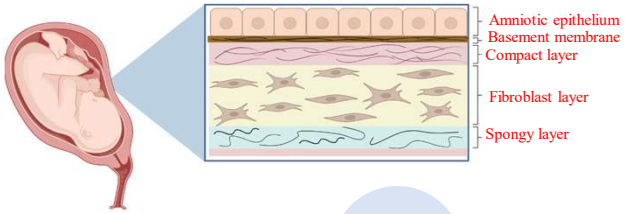
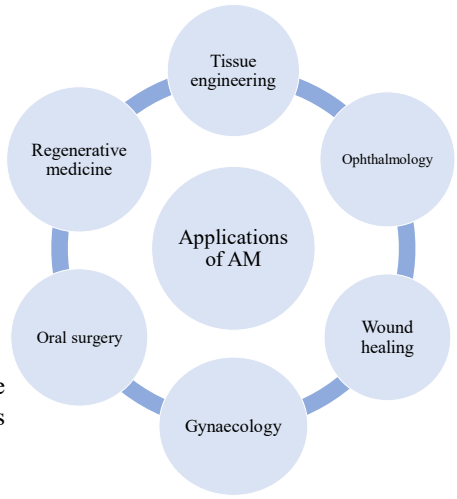
Introduction

- Amniotic membrane is a membrane present in the inner layer of the placenta.



- Cells of AM produce anti-inflammatory and anti-bacterial factors such as
  - β-defensins
  - Secretory leucocyte proteinase inhibitor (SLPI)
  - Elafin
  - IL-1, 2, 6, 8 and 10

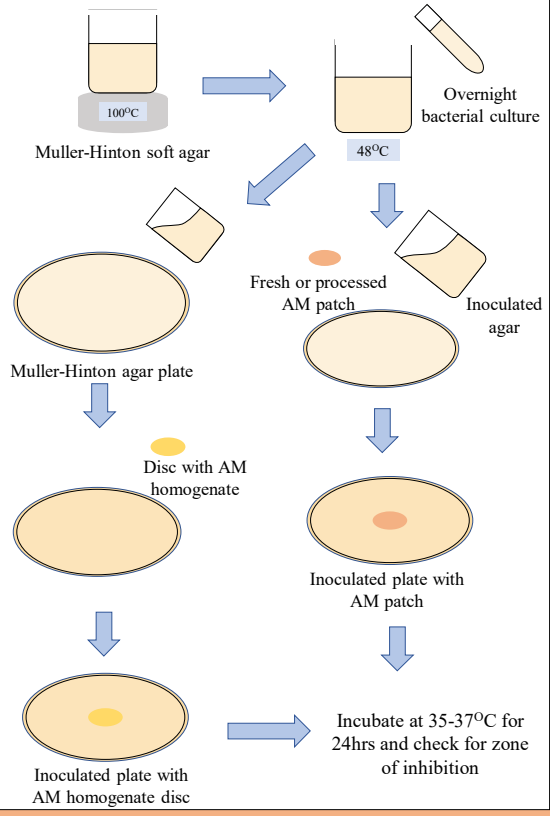


- This makes the AM a valuable resource that can be exploited for various applications in biomedical field.

Aim/Objective

- To assess the antibacterial property of the amniotic membrane.

Methodology



Results

- Cryopreserved AM with viable cells shows strong antibacterial property against antibiotic resistant bacteria MRSA, MSSA and *P. aeruginosa.*
- The cells of produced soluble factors HBD2, HBD3, Histone H2B and SPLI.
- Decellularization of the AM showed significant decrease in the antibacterial effect.
- AM homogenate was also observed to be potent against MRSA, ESBL producing *E. coli,* Carbapenem-resistant *A. baumanni,* ESBL producing *K. pneumoniae.*
- It has also been observed to have anti-biofilm property against *S. aureus* and *P. aeruginosa.*

Conclusion

- Viable cells play a critical role in the antibiotic property of AM as they produce soluble antimicrobial peptides.
- In the era of increasing antibiotic resistance, AM can be exploited as an improved alternative for antibiotics.

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Presented at MRC-2023, Manipal Academy of Higher Education, Manipal