GRAFTS: COMPOSITION, INDICATIONS, AND GENERAL PHASES OF WOUND HEALING

- **ACell (MatriStem Wound Matrix):**
  - Composition: porcine-derived naturally occurring lyophilized extracellular matrix
  - Indications: partial and full thickness wounds, pressure ulcers, venous ulcers, diabetic ulcers, chronic vascular ulcers, tunneled/undermined wounds, surgical wounds, and draining wounds
  - Contraindications: sensitivity/allergy to porcine, third degree burns
  - Note: Intended for 1 time use

- **Apligraf:**
  - Composition: Living bi-layered cell based: lower dermal layer includes bovine type 1 collagen and human fibroblasts (produces matrix proteins), upper epidermal layer formed by promoting keratinocytes to multiply and differentiate to replicate the human epidermis
    - Note: unlike human skin, it does not contain melanocytes, Langerhan’s cells, macrophages, lymphocytes, and other structures including vessels, hair follicles, and sweat glands
  - Indications: chronic venous ulcers (partial or full-thickness) of > 1 month duration with inadequate response to conventional ulcer therapy, diabetic foot ulcers (full-thickness, neuropathic) of > 3 week duration which extends through dermis (but no exposure of tendon/muscle/capsule/bone)
    - Dr. McGuire’s Wound Care Manual:
      - Indicated for venous leg ulcers and diabetic foot ulcers
      - Note: When combined with compression therapy, it has been found to improve healing of venous stasis ulcers compared to compression alone
      - Note: On average, each patient is treated with 1 -2 applications
  - Contraindications: Infected wounds, allergy to bovine collagen or hypersensitivity to shipping medium

- **Dermagraft:**
  - Composition: human fibroblasts, an extracellular matrix, bioabsorbable polyglactin mesh scaffold
    - Dr. McGuire’s Wound Care Manual:
      - Manufactured from newborn foreskin tissue
      - Fibroblasts secrete human dermal collagen, matrix proteins, growth factors, and cytokines after being seeded onto scaffold
        - Thereby containing metabolically active living cells
      - No macrophages, lymphocytes, blood vessels, or hair follicles
  - Indications: FDA approved specifically for diabetic foot ulcers, suggested to use when chronic for > 6 weeks and have adequate blood supply, no signs of infection, no tendon/muscle/capsule/bone exposed, and granulating wound bed
    - Note: has been successful for treating burn wounds
  - Contraindications: Do not use if signs of infection or sinus tracts present in DFU, hypersensitivity to bovine

- **Graftjacket:**
  - Composition: Allograft dermal tissue matrix (regenerative tissue matrix)
    - Note: Contains collagen, elastin, hyaluronan, fibronectin, blood vessel channels, and proteoglycans
  - Indications: Repair or replacement of damaged or inadequate integumental tissue
    - Dr. McGuire’s Wound Care Manual:
      - Indicated for Chronic Skin Wounds in patients with diabetes
  - Contraindications: Pt with autoimmune connective tissue disease, infected or nonvascular surgical sites (unless specifically prescribed by physician), pathology that limits blood supply and compromises healing, poor nutrition and/or poor general medical condition, sensitivity to specific antibiotics on package
• **Integra:**
  o Composition: porous matric of cross-linked bovine tendon collagen and glycosaminoglycan (scaffold for cellular invasion and capillary growth) and a semi-permeable polysiloxane (provides flexibility, better tear strength, controls water vapor loss, bacterial barrier, etc.)
  o Indications: partial and full thickness wounds, pressure ulcers, venous ulcers, diabetic ulcers, chronic vascular ulcers, surgical wounds, trauma wounds (abrasions, lacerations, 2nd degree burns, skin tears) and draining wounds
    ▪ Note: intended for 1 time use, has been successful in treating burns
  o Contraindications: known sensitivity to bovine collagen or chondroitin materials, 3rd degree burn

• **Oasis Wound Matrix:**
  o Composition: Biologically derived intact matrix naturally derived from porcine small intestinal submucosa
  o Indications: partial and full thickness wounds, pressure ulcers, venous ulcers, chronic vascular ulcers, diabetic ulcers, trauma wounds (abrasions, lacerations, 2nd degree burns, skin tears), draining wounds, surgical wounds
    ▪ Dr. McGuire’s Wound Care Manual:
      ▪ Indicated for all partial and full thickness wounds, superficial and 2nd degree burns
  o Contraindications: 3rd degree burns, allergy to porcine

• **Regranex Gel:**
  o Composition: Becaplermin gel, recombinant human platelet-derived growth factor
  o Indications: LE diabetic neuropathic ulcers extending into subcutaneous tissue or beyond and have adequate blood supply
  o Contraindications: known neoplasm at or near application site (increase rate of mortality secondary to malignancy when used 3 or more tubes), possibility of sensitization or irritation caused by parabens or m-cresol

• **TissueMend:**
  o Composition: pure non-denatured collagen from fetal bovine dermis
  o Indications: tendon repair surgery, may be used in both open and arthroscopic applications
  o Contraindications: Allergy to Bovine, Infection

• **General Information: Phases of Wound Healing**
  o **Phase 1: Inflammatory Phase**
    ▪ When: Immediate to 2-5 days
    ▪ Characteristics:
      ▪ Hemostasis: vasoconstriction, platelet aggregation, thromboplastin makes clot
      ▪ Inflammation: vasodilation, phagocytosis
  o **Phase 2: Proliferative Phase**
    ▪ When: 2 days to 3 weeks
    ▪ Characteristics:
      ▪ Granulation: fibroblasts lay collagen bed, makes new capillaries
      ▪ Contraction: Wound edges pull towards each other
      ▪ Epithelialization: Crosses moist surface, cell can travel 3 cm from origin
  o **Phase 3: Remodeling**
    ▪ When: 3 weeks to 2 years
    ▪ Characteristics:
      ▪ New Collagen Formation: higher tensile strength
      ▪ Scar Tissue: 80% strength of original tissue