FERTILITY DETECTIVE SYSTEM - RIF& RM

- BLOODWORK
  - Iron Panel
  - Autoimmune markers
  - Blood clotting factors
  - Thyroid Panel
  - Thyroid Antibodies
  - Low Progesterone
- UTERINE LINING
  - THICKNESS
  - EMMA
  - ALICE
  - NK
  - DQ Alpha
  - Adenomyosis/Endometriosis
  - Fibroids
- ANATOMICAL
  - Heart Shape Utersus
  - Hydrosalphinx
- EMBRYO
  - Genetically Viable
  - Poor Quality?
- SPERM
  - Morphology
  - DNA fragmentation

WM Causes of RM

Endometrial Factors

Endometriosis
- Mechanism: Chronic inflammation, impaired uterine receptivity, immune dysfunction
- Testing: Ultrasound, MRI, laparoscopy
- Western Medical Treatment: Laparoscopic excision, GnRH agonists, immune modulation

Chronic Endometritis
- Mechanism: Persistent uterine inflammation due to bacterial infection
- Testing: Endometrial biopsy, ALICE test
- Western Medical Treatment: Antibiotics, probiotics

Thin Endometrium
- Mechanism: Poor uterine lining thickness impairs implantation
- Testing: Ultrasound (endometrial thickness)
- Western Medical Treatment: Estrogen supplementation, PRP therapy

Uterine Abnormalities

Septate Uterus
- Mechanism: Structural defect impairs implantation
- Testing: Ultrasound, MRI, hysteroscopy
- Western Medical Treatment: Surgical correction (hysteroscopic metroplasty)

Fibroids, Adhesions
- Mechanism: Uterine pathology blocks implantation
- Testing: Ultrasound, hysteroscopy
- Western Medical Treatment: Surgical removal (myomectomy, adhesion resection)

Asherman Syndrome
- Mechanism: Intrauterine adhesions reduce endometrial receptivity
- Testing: Hysteroscopy (gold standard)
- Western Medical Treatment: Surgical hysteroscopic adhesiolysis

Male Factor

Sperm DNA Fragmentation
- Mechanism: High sperm DNA damage reduces embryo quality
- Testing: Sperm DNA fragmentation testing
- Western Medical Treatment: Antioxidants (CoQ10, Vitamin C/E)

Advanced Sperm Selection (PICSI, IMSI)
- Mechanism: Improves sperm quality and selection for fertilization
- Testing: Hyaluronic acid binding, high-magnification sperm selection
- Western Medical Treatment: ICSI, PICSI, IMSI

Lifestyle Factors

Smoking, Alcohol, High BMI
- Mechanism: Oxidative stress, hormonal imbalance
- Testing: Clinical evaluation
- Western Medical Treatment: Lifestyle changes, smoking cessation, weight management

Genetic Factors

Embryonic Chromosomal Abnormalities
- Mechanism: Aneuploidy (extra/missing chromosomes)
- Testing: Karyotyping of products of conception; Preimplantation Genetic Testing (PGT-A)
- Western Medical Treatment: IVF with PGT-A & genetic counselling

Parental Chromosomal Translocations
- Mechanism: Structural abnormalities like balanced translocations
- Testing: Parental karyotyping
- Western Medical Treatment: IVF with PGT-A & genetic counselling

Endocrine Disorders

Polycystic Ovary Syndrome (PCOS)
- Mechanism: Hormonal imbalance affects ovulation and endometrial receptivity
- Testing: Hormone panels (FSH, LH, testosterone, AMH), ultrasound
- Western Medical Treatment: Metformin, ovulation induction, lifestyle changes. Clomid, Letrozole

Thyroid Dysfunction
- Mechanism: Low/high thyroid hormone levels impair pregnancy maintenance
- Testing: TSH, T3/T4, anti-TPO antibodies
- Western Medical Treatment: Thyroid hormone replacement (levothyroxine) or antithyroid drugs

Progesterone Deficiency (Luteal Phase Defect)
- Mechanism: Insufficient endometrial support
- Testing: Serum progesterone during luteal phase
- Western Medical Treatment: Progesterone supplementation (oral, vaginal, or injectable)

Blood Clotting Disorders

Antiphospholipid Syndrome (APS)
- Mechanism: Autoantibodies cause placental clots
- Testing: Lupus anticoagulant, anticardiolipin antibodies, beta-2 glycoprotein I antibodies
- Western Medical Treatment: Low-dose aspirin, Clexane

Factor V Leiden, Prothrombin Mutation
- Mechanism: Genetic thrombophilia causes blood clots in placental vessels
- Testing: Genetic testing (Factor V Leiden, prothrombin G20210A)
- Western Medical Treatment: Low-dose aspirin, Clexane

Autoimmune Factors

Autoimmune Thyroiditis
- Mechanism: Autoantibodies attack fetal or placental tissue
- Testing: Anti-TPO, anti-thyroglobulin antibodies
- Western Medical Treatment: Thyroid hormone replacement

Systemic Lupus Erythematosus (SLE)
- Mechanism: Autoantibodies damage fetal or placental tissues
- Testing: ANA, anti-dsDNA
- Western Medical Treatment: Low-dose steroids, hydroxychloroquine, IVIG

WM Causes of Recurrent Implantation Failure

Anatomical Factors

Hydrosalpinx
- Mechanism: Toxic fluid from blocked fallopian tubes harms embryo implantation
- Testing: Ultrasound; hysterosalpingogram (HSG)
- Western Medical Treatment: Surgical removal or clipping of affected tubes

Ashermans Syndrome
- Mechanism: Intrauterine adhesions reduce endometrial receptivity
- Testing: Hysteroscopy
- Western Medical Treatment: Surgical adhesiolysis

Embryo Factors

Aneuploid Embryos
- Mechanism: Chromosomal abnormalities reduce implantation potential
- Testing: PGT-A
- Western Medical Treatment: IVF with PGT-A tested embryos

Sperm DNA Fragmentation
- Mechanism: Damaged sperm DNA affects embryo quality
- Testing: Sperm DNA fragmentation testing
- Western Medical Treatment: Antioxidants (CoQ10, vitamin C, E); PICSI; IMSI

Male Factor

Sperm Morphology, Oligospermia
- Mechanism: Abnormal sperm shape reduces fertilization and embryo quality
- Testing: Semen analysis (Kruger's strict criteria)
- Western Medical Treatment: ICSI; PICSI; IMSI

Sperm DNA Fragmentation
- Mechanism: Fragmented DNA impairs embryo development and increases miscarriage risk
- Testing: Sperm DNA Fragmentation Index (DFI) testing
- Western Medical Treatment: Antioxidants; lifestyle changes; PICSI; IMSI

Endometrial Factors

Chronic Endometritis
- Mechanism: Persistent uterine inflammation
- Testing: Endometrial biopsy; ALICE test
- Western Medical Treatment: Antibiotics; probiotics

Uterine Microbiome Imbalance
- Mechanism: Pathogenic bacteria reduce uterine receptivity
- Testing: Endometrial biopsy; EMMA test
- Western Medical Treatment: Probiotics; antibiotics

Thin Endometrium
- Mechanism: Poor uterine lining thickness impairs implantation
- Testing: Ultrasound (endometrial thickness)
- Western Medical Treatment: Estrogen supplementation; PRP therapy; Viagra suppositories

Endometriosis
- Mechanism: Chronic inflammation impairs uterine receptivity
- Testing: Laparoscopy
- Western Medical Treatment: Laparoscopic excision; GnRH agonists

Immune Dysregulation

High Uterine NK Cell Activity
- Mechanism: Overactive immune response attacks embryo
- Testing: Uterine biopsy, NK cell testing
- Western Medical Treatment: Intralipids; IVIG; low-dose steroids; LOLA protocol

HLA Matching (DQ-alpha)
- Mechanism: Lack of maternal-fetal immune tolerance
- Testing: HLA typing
- Western Medical Treatment: IVIG; Intralipids; LMIT; LOLA protocol; donor sperm/egg

Blood Flow Issues

Uterine Artery Insufficiency
- Mechanism: Poor blood flow reduces implantation
- Testing: Doppler ultrasound
- Western Medical Treatment: Aspirin; Clexane; G-CSF

Blood Clotting Disorders RM

Protein S Deficiency
- Details
  - Similar to Protein C deficiency, Protein S deficiency prevents proper anticoagulation.
  - Can result in placental clot formation.
- Testing
  - Functional assay for Protein S activity.
- Treatment
  - Clexane.

Antithrombin III Deficiency
- Details
  - Genetic condition reducing the activity of antithrombin, a natural anticoagulant.
  - Causes increased risk of clotting in the placenta.
- Testing
  - Blood test for antithrombin III levels.
- Treatment
  - Clexane.
  - Antithrombin replacement therapy in severe cases.

Hyperhomocysteinemia (Related to MTHFR Mutation)
- Details
  - Elevated homocysteine levels damage blood vessels, increasing clot risk.
  - MTHFR gene mutations (e.g., C677T, A1298C) can impair folate metabolism, leading to hyperhomocysteinemia.
- Testing
  - Genetic testing for MTHFR mutations.
  - Blood test for homocysteine levels.
- Treatment
  - Activated folate (L-methylfolate).
  - Vitamin B6 and B12 supplementation.
  - Dietary changes to include natural folates.
  - Anticoagulants like low-dose aspirin or Clexane if hypercoagulability is present.

Congenital Thrombophilia (Rare)
- Details
  - Inherited thrombophilic conditions like dysfibrinogenemia or plasminogen deficiency.
- Testing
  - Comprehensive thrombophilia screen (specialized lab tests).
- Treatment
  - Managed on a case-by-case basis with anticoagulants or thrombolytic agents.

Antiphospholipid Syndrome (APS)
- Details
  - Autoimmune disorder causing abnormal blood clotting and placental dysfunction.
  - Antibodies: Anticardiolipin antibodies (IgG, IgM), Lupus anticoagulant, Beta-2 glycoprotein I antibodies.
- Testing
  - Blood tests for anticardiolipin antibodies, lupus anticoagulant, and beta-2 glycoprotein I antibodies.
  - Repeat testing after 12 weeks for confirmation.
- Treatment
  - Low-dose aspirin.
  - Clexane (enoxaparin).

Factor V Leiden Mutation
- Details
  - Most common genetic thrombophilia.
  - Mutation in Factor V gene prevents normal anticoagulant mechanisms.
  - Can lead to placental thrombosis and miscarriage.
- Testing
  - Genetic testing for Factor V Leiden mutation.
- Treatment
  - Low-dose aspirin.
  - Clexane for additional risk factors or recurrent loss.

Prothrombin Gene Mutation (G20210A)
- Details
  - Genetic mutation increasing prothrombin levels (Factor II).
  - Causes hypercoagulability and placental thrombosis.
- Testing
  - Genetic testing for Prothrombin G20210A mutation.
- Treatment
  - Low-dose aspirin.
  - Clexane therapy if recurrent loss is confirmed.

Protein C Deficiency
- Details
  - Rare inherited condition causing impaired regulation of clotting factors.
  - Leads to excessive clot formation in placental vessels.
- Testing
  - Functional assay for Protein C activity.
- Treatment
  - Clexane.
  - Anticoagulant dose adjusted based on severity.

Autoimmune Factors in RM & RIF

Antiphospholipid Syndrome (APS)

- **Details**
  - Anticardiolipin antibodies (IgG, IgM)
  - Lupus anticoagulant
  - Beta-2 glycoprotein I antibodies
- **Testing**
  - Blood tests for lupus anticoagulant, anticardiolipin antibodies, and beta-2 glycoprotein I antibodies
- **Treatment**
  - Low-dose aspirin
  - Heparin

Antinuclear Antibodies (ANA)

- **Details**
  - General marker of systemic autoimmune activity
  - Associated with systemic lupus erythematosus (SLE)
- **Testing**
  - Blood tests for antinuclear antibodies (ANA)
- **Treatment**
  - Steroids (in severe cases)
  - Treatment tailored based on associated autoimmune conditions (e.g., SLE)

Thyroid Autoimmunity

- **Details**
  - Anti-thyroglobulin antibodies
  - Anti-thyroid peroxidase (anti-TPO) antibodies
- **Testing**
  - Blood tests for anti-TPO and anti-thyroglobulin antibodies
  - TSH, FT3, and FT4 levels
- **Treatment**
  - Levothyroxine for hypothyroidism
  - Monitoring thyroid function during pregnancy

Natural Killer (NK) Cells Activity

- **Details**
  - High uterine or peripheral NK cell activity
  - Potential immune rejection of the embryo
- **Testing**
  - Uterine biopsy for NK cell testing
  - Peripheral blood flow cytometry for NK activity
- **Treatment**
  - Intravenous immunoglobulin (IVIG)
  - Steroids
  - Intralipids
  - LOLA protocol

Other Autoimmune Conditions

- **Details**
  - Sjogren's Syndrome: Associated with antiphospholipid antibodies
  - Rheumatoid Arthritis: Can increase inflammation during pregnancy
  - Undifferentiated connective tissue diseases (UCTD): Conditions with mixed autoimmune features
- **Testing**
  - Disease-specific autoantibody testing (e.g., rheumatoid factor, SSA/SSB antibodies)
- **Treatment**
  - Condition-specific management (e.g., hydroxychloroquine, corticosteroids)
  - Close monitoring during pregnancy

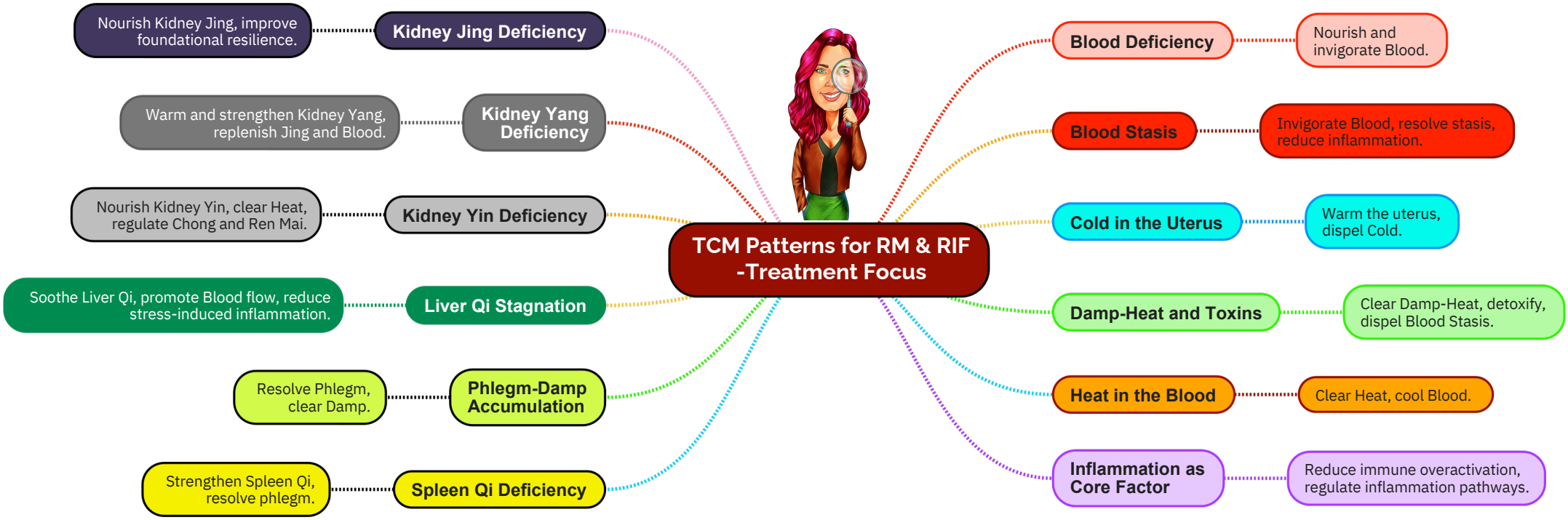
HLA Compatibility Issues (DQ-alpha Matching)

- **Details**
  - Lack of sufficient maternal-fetal immune tolerance
  - Similar HLA profiles between partners
- **Testing**
  - HLA typing (DQ-alpha matching)
- **Treatment**
  - Intravenous immunoglobulin (IVIG), LOLA Protocol, LMIT
  - Donor sperm or egg (in extreme cases)

Systemic Lupus Erythematosus (SLE)

- **Details**
  - Increases risk of pregnancy complications
  - Associated with recurrent miscarriage
- **Testing**
  - ANA, anti-dsDNA antibodies, complement levels (C3, C4)
- **Treatment**
  - Low-dose steroids
  - Hydroxychloroquine
  - Low-dose aspirin

TCM Pattern for RM & RIF



TCM DIFFERENTIATION of SPERM TEST

Liver Qi Stag
- Low volume
- Increased viscosity
- Prolonged liquefaction time
- Low density
- Abnormal morphology

Blood Stagnation
- No spermatozoa or low density
- Poor motility
- Low morphology
- High percentage of red blood cells
- Antiserum antibodies

Cold In Liver Channel
- Low motility
- Cold
- Thin and watery semen
- Prolonged liquefaction time

Damp Heat
- Thick yellowish turbid semen
- High % of white blood cells
- Pus
- Prolonged or missing liquefaction
- Low volume
- High % of dead sperm
- Low motility
- Low density

Kid Yang Xu
- Low motility
- Cold
- Thin and watery semen
- Prolonged liquefaction time
- Abnormal morphology
- Azoospermia

Kid Yin Xu
- Sticky thickened seminal fluid
- Low volume
- Decreased sperm count
- Prolonged liquefaction time
- Low morphology

Kid Jing Xu
- Low volume
- Low count
- Low morphology
- Prolonged liquefaction time

Spleen Xu
- Low density
- Clear & cold semen
- Low motility
- Low count