KEY POINTS/BOOKMARKS

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II. Pre/Probiotics (Restorative Microbology): A Rubic's Cube

"Nutraceuticals" (Health or medical benefits)

1. "You aren't what you eat, you are what your bugs eat."
2. Establish a standardized pre/probiotic strategy based on published research, expanding to complement antibiotic therapy.
3. Understand manufactures vary significantly in quality of probiotics and measurement of dose at times of use.
4. Metagenomics defines the microbial landscape and the environment for probiotic activity.
5. Probiotics have changed from an adjunctive care to a therapeutic strategy.
6. The Metagenomics defines the genetic strength of microbiota a non-structured (organ system) that requires stewardship by Minimal Intervention for optimal effectiveness.
7. Probiotics are temporary colonizers that do not establish a recalcitrant biofilms community
8. "We live in a microbial world."
9. Matching (Microbial Clock) this Rubic's Cube is the solution for optimum probiotic efficacy, including the patient Enterotype, 1,2 or 3 (GUT Signature)
10. An ideal Synbiotic (Combinations of selected probiotics) will probably have 3-5 microbes , based on biobilm stability and stress maintenance via Diversity and Resilience (D/R). Designer

Probiotics or Intelligent Probiotics will self manage, self treat and self-monitor infections attributable to biofilms .

11. Recognizing the importance of commensal microbes and non pathogens , *Sacchromyces bulardi* should be a key component of any probiotic particularly following ABX Rx.
12. Generally, synbiotics should use a combination of microbes emphasizing bioburden reduction and immunomodulation; presently biofilm producing probiotics have highlighted Predatory Probiotics (Tb) and Tumor homing or detection of altered metabolic states in mutagenisis.(*Bifidobacterium*)