



İmmünosupresif Hastalarda Mikrobiyom ve Virom İlişkisi

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Enfeksiyon Hast. Ve Klin. Mik. AD

AMAÇ

“Nakil hastalarında mikrobiyom ve viromun immün yanıt üzerindeki etkilerini ve bu bilgilerin gelecekteki klinik uygulamalara nasıl yön verebileceğini ele alacağız.”

Nakil Sonrası İlk Yılda Enfeksiyon Risk Dinamikleri

Journal of Infection 91 (2025) 106571



Contents lists available at [ScienceDirect](#)

Journal of Infection

journal homepage: www.elsevier.com/locate/jinf



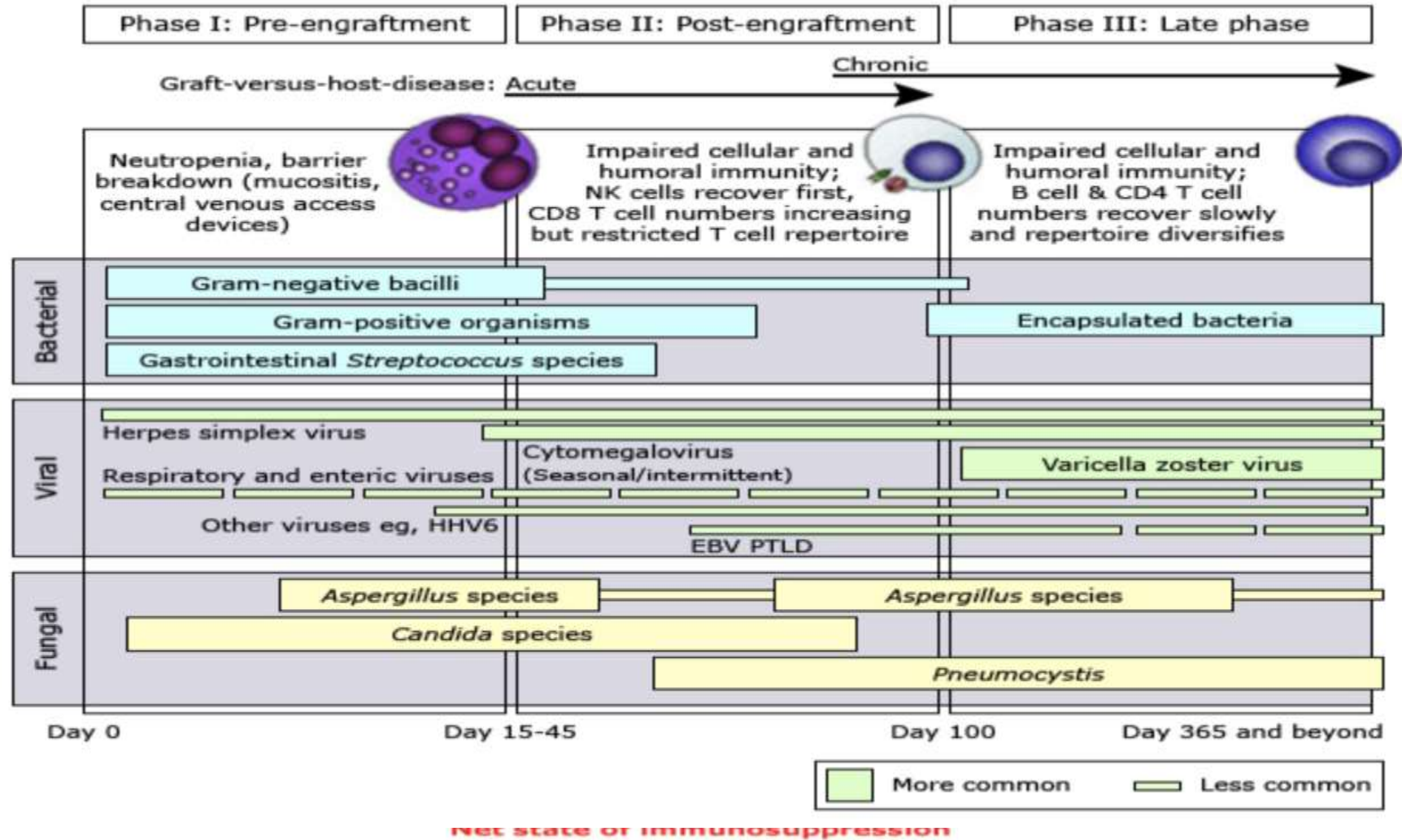
Review

Epidemiology of resistant bacterial infections in patients with hematological malignancies or undergoing hematopoietic cell transplantation in Europe: A systematic review by the European Conference on Infections in Leukemia (ECIL)

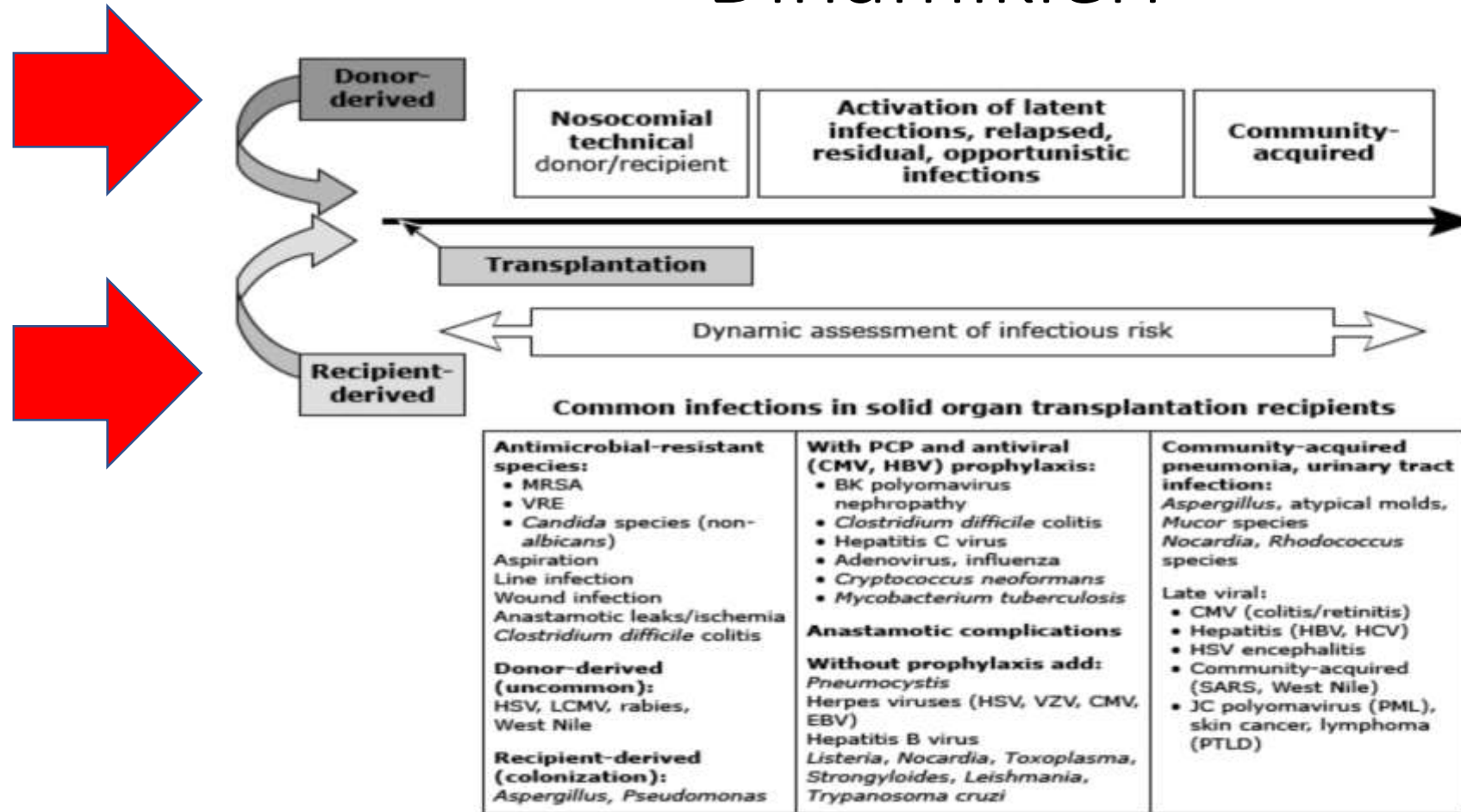


Carbapenem

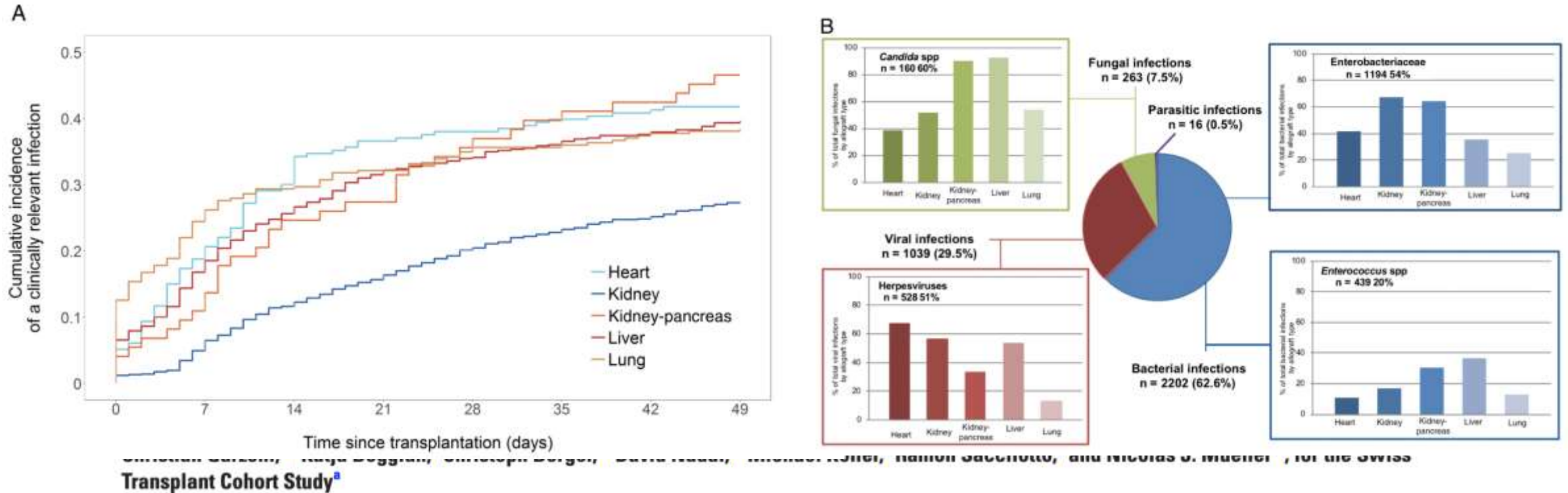
Nakil Sonrası İlk Yılda Enfeksiyon Risk Dinamikleri



Organ Nakli Sonrası Enfeksiyon Riskinin Dinamikleri

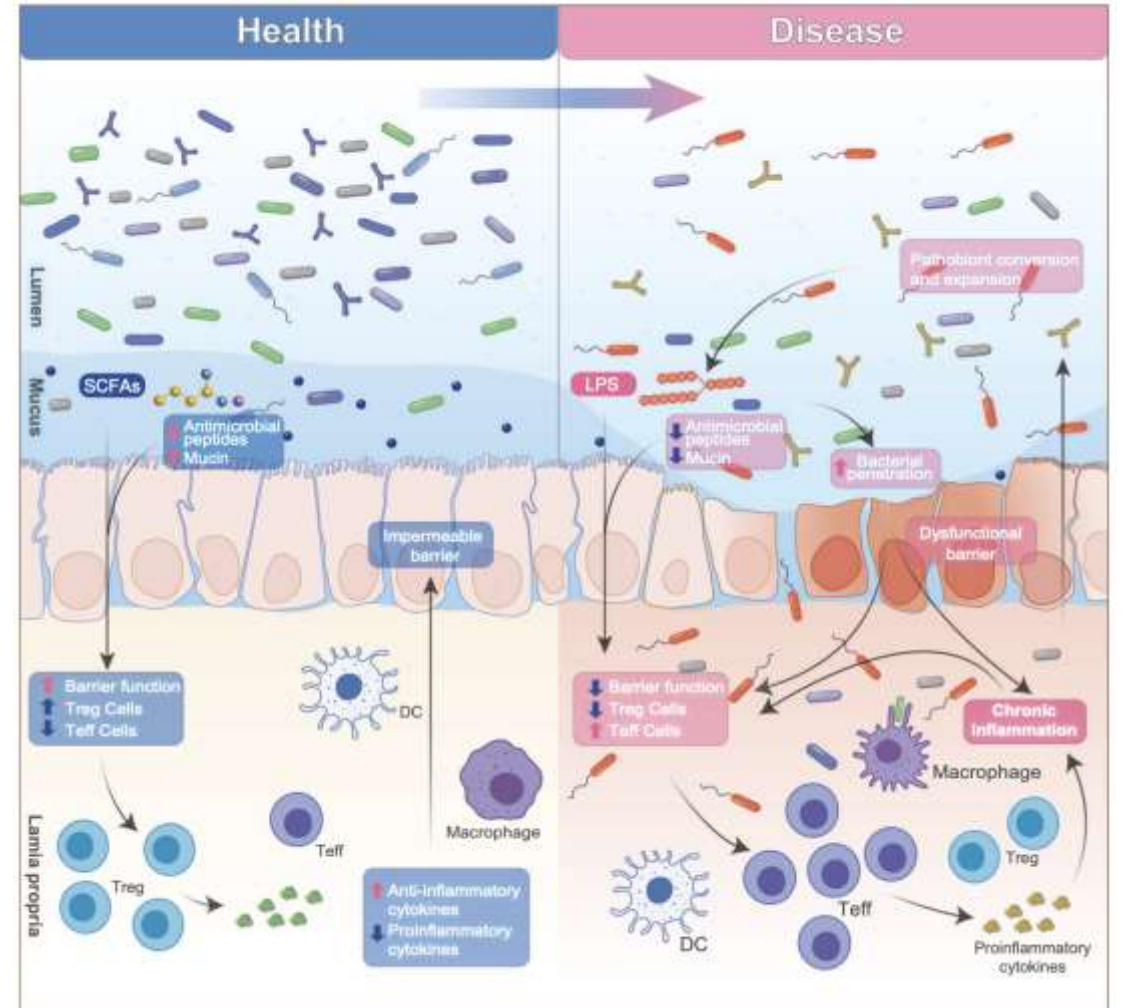
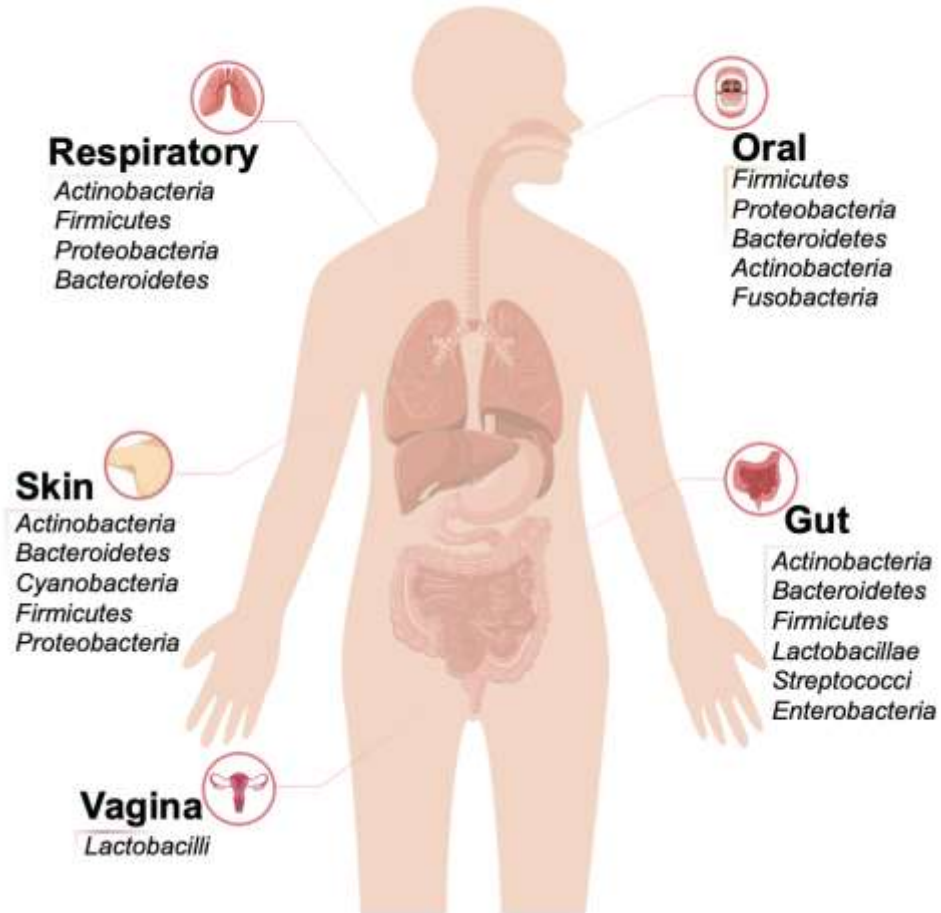


Organ Nakli Sonrası Enfeksiyon Riskinin Dinamikleri

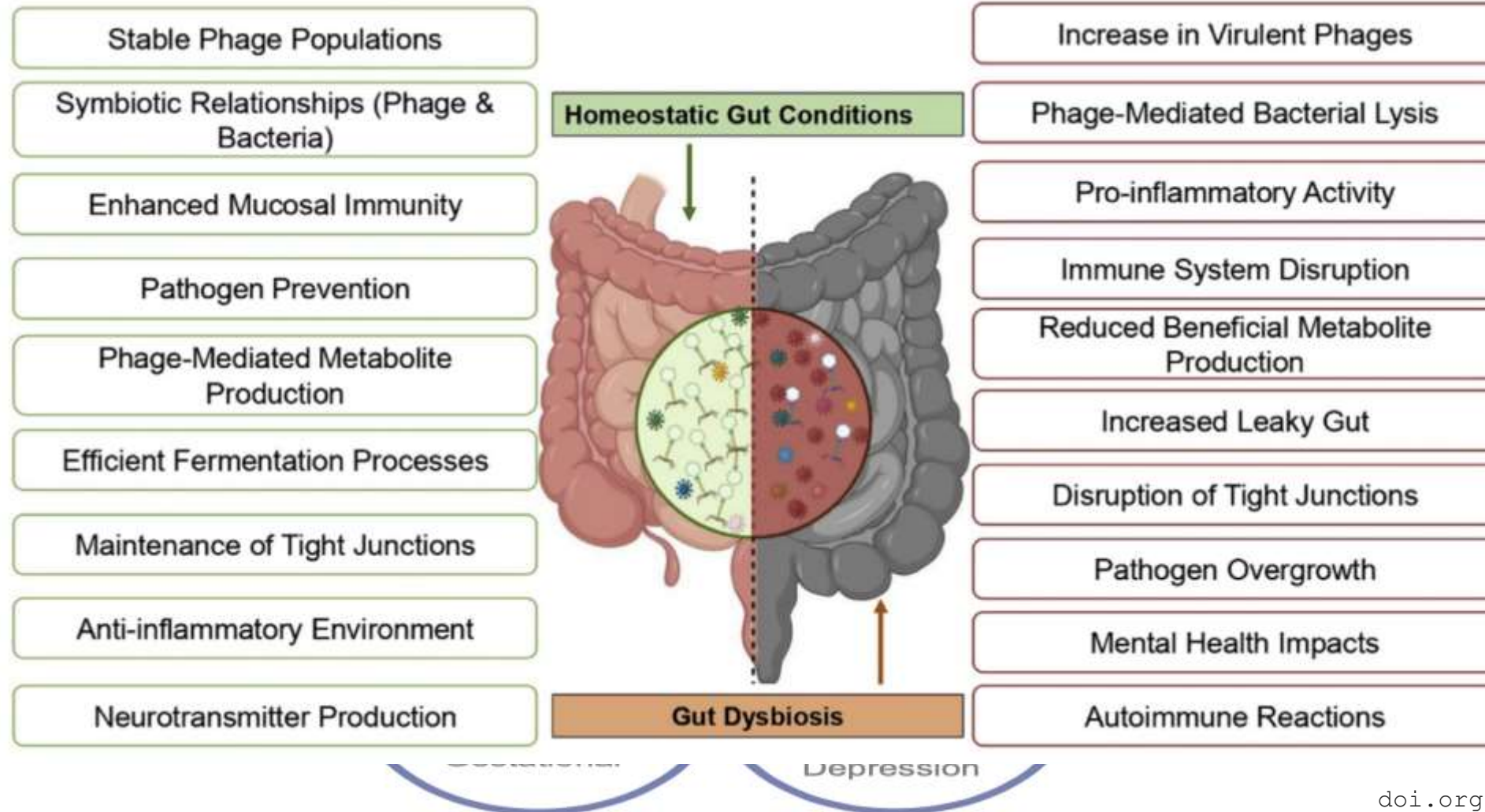


İnsan Mikrobiyomu: Hücrelerimiz Ötesindeki Çeşitlilik

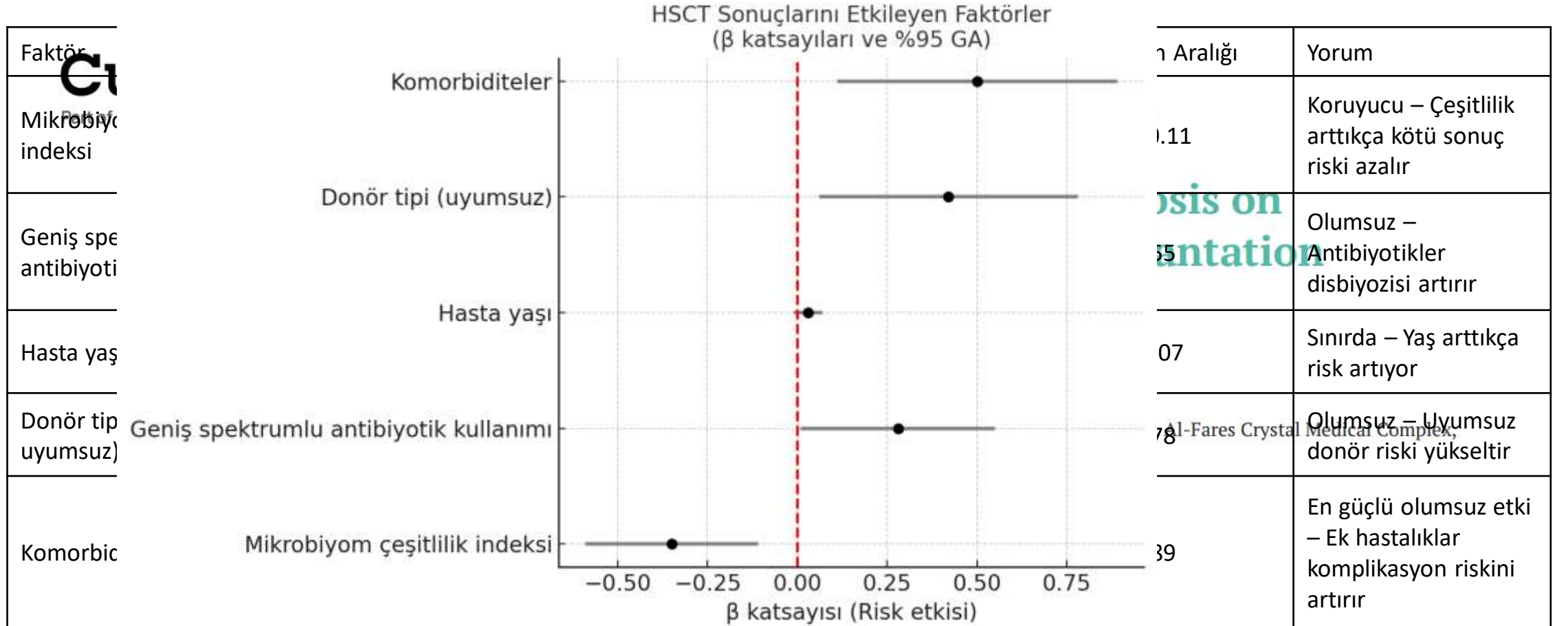
Microbiota composition in different regions



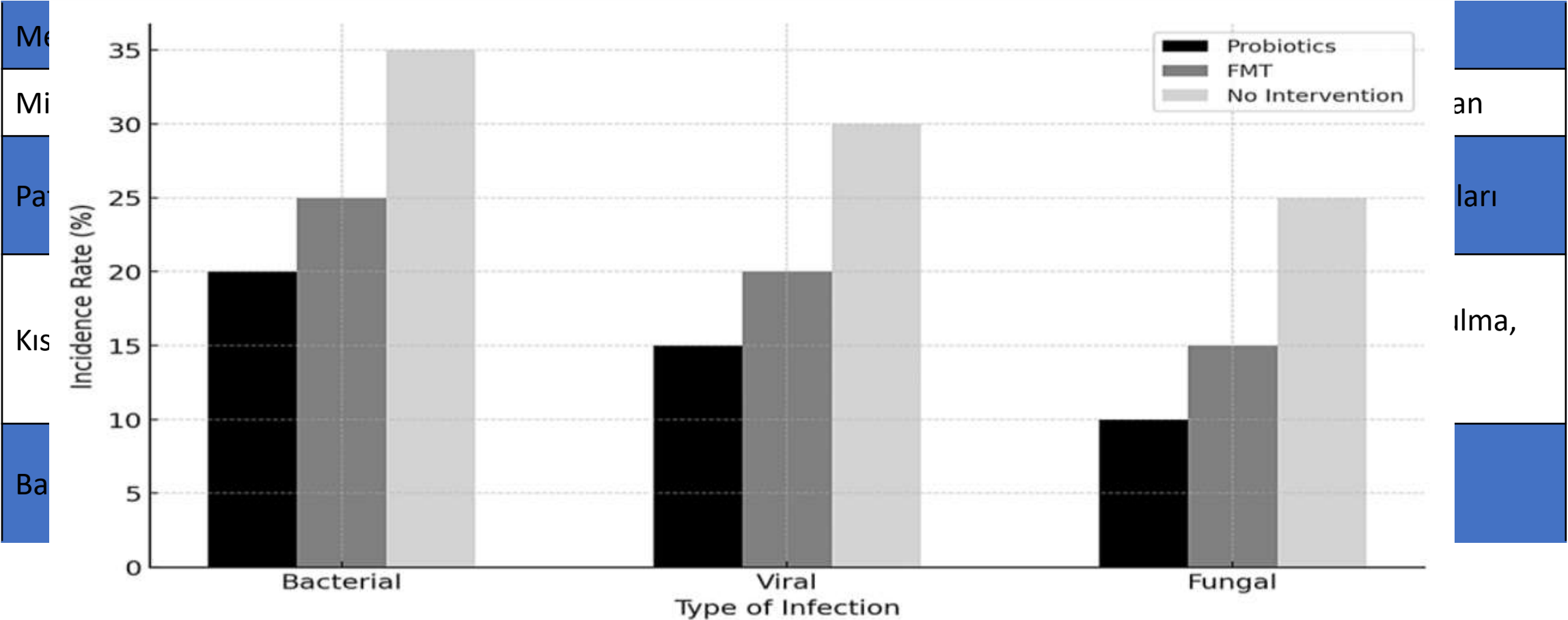
Mikrobiyota Dengesinden Disbiyozise: Sağlık ve Hastalık Arasında İnce Çizgi



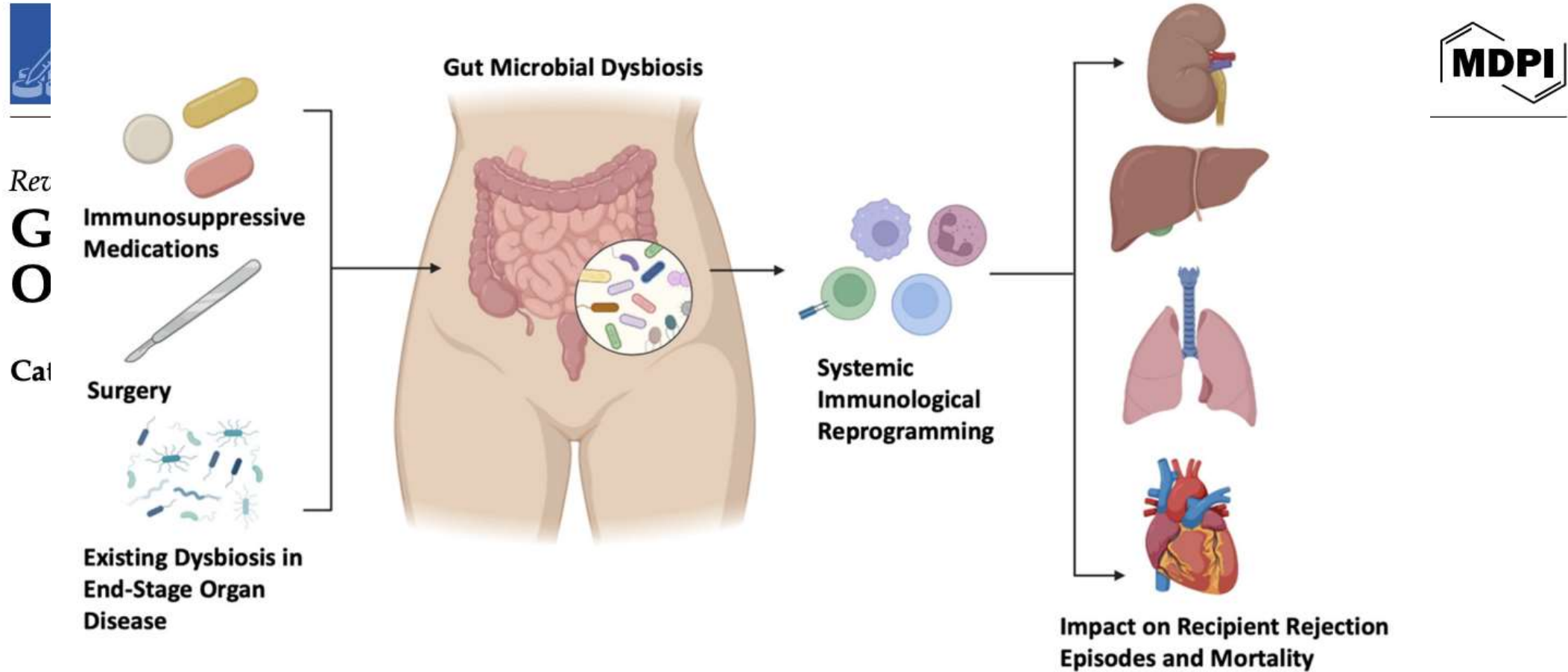
HSCT Sonrası Disbiyozis: Enfeksiyon ve Transplant Sonuçlarının Gizli Belirleyicisi



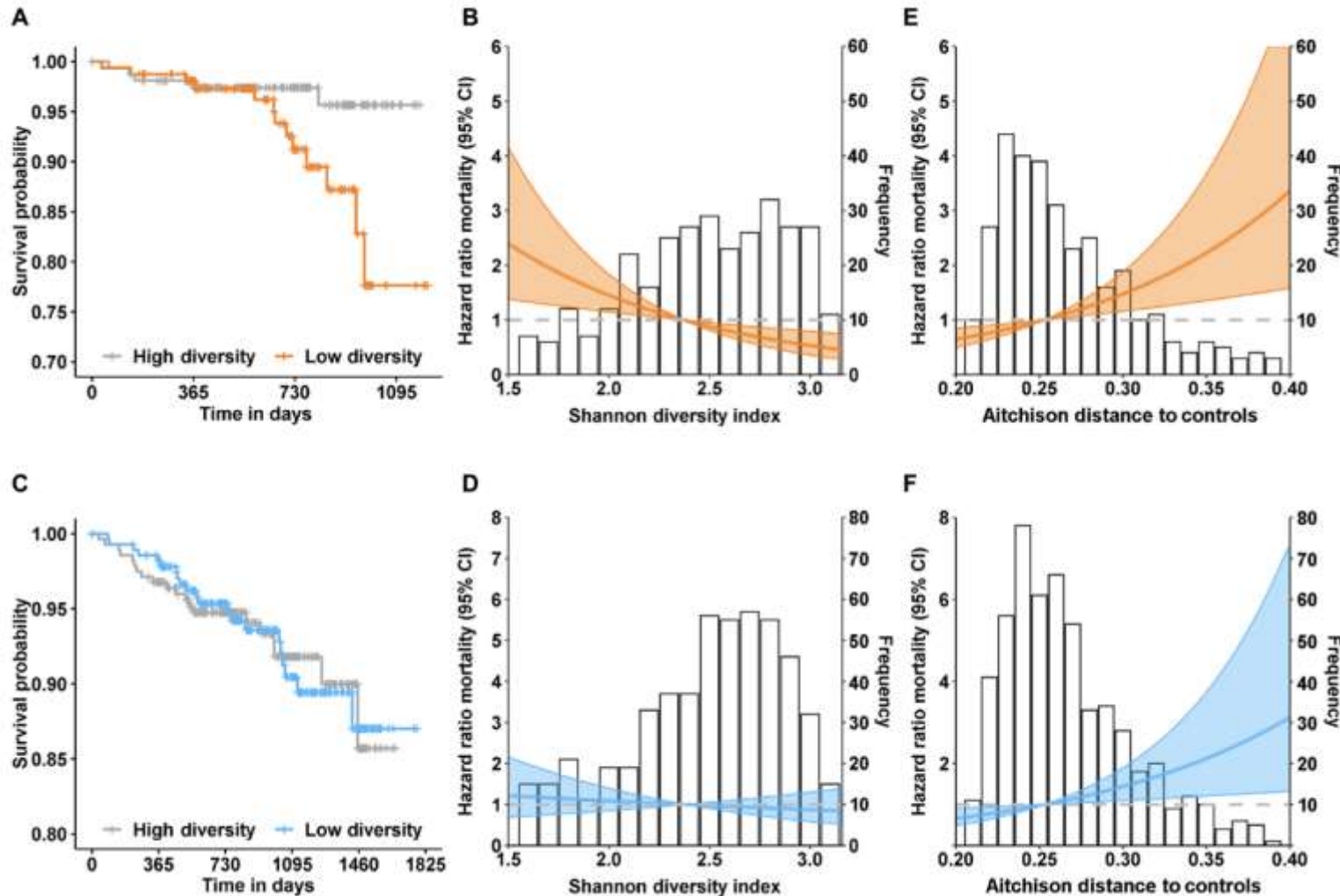
HSCT Sonrası Disbiyozis: Enfeksiyon ve Transplant Sonuçlarının Gizli Belirleyicisi



Mikrobiyal Disbiyozisin Solid Organ Nakli Sonuçlarına Etkileri

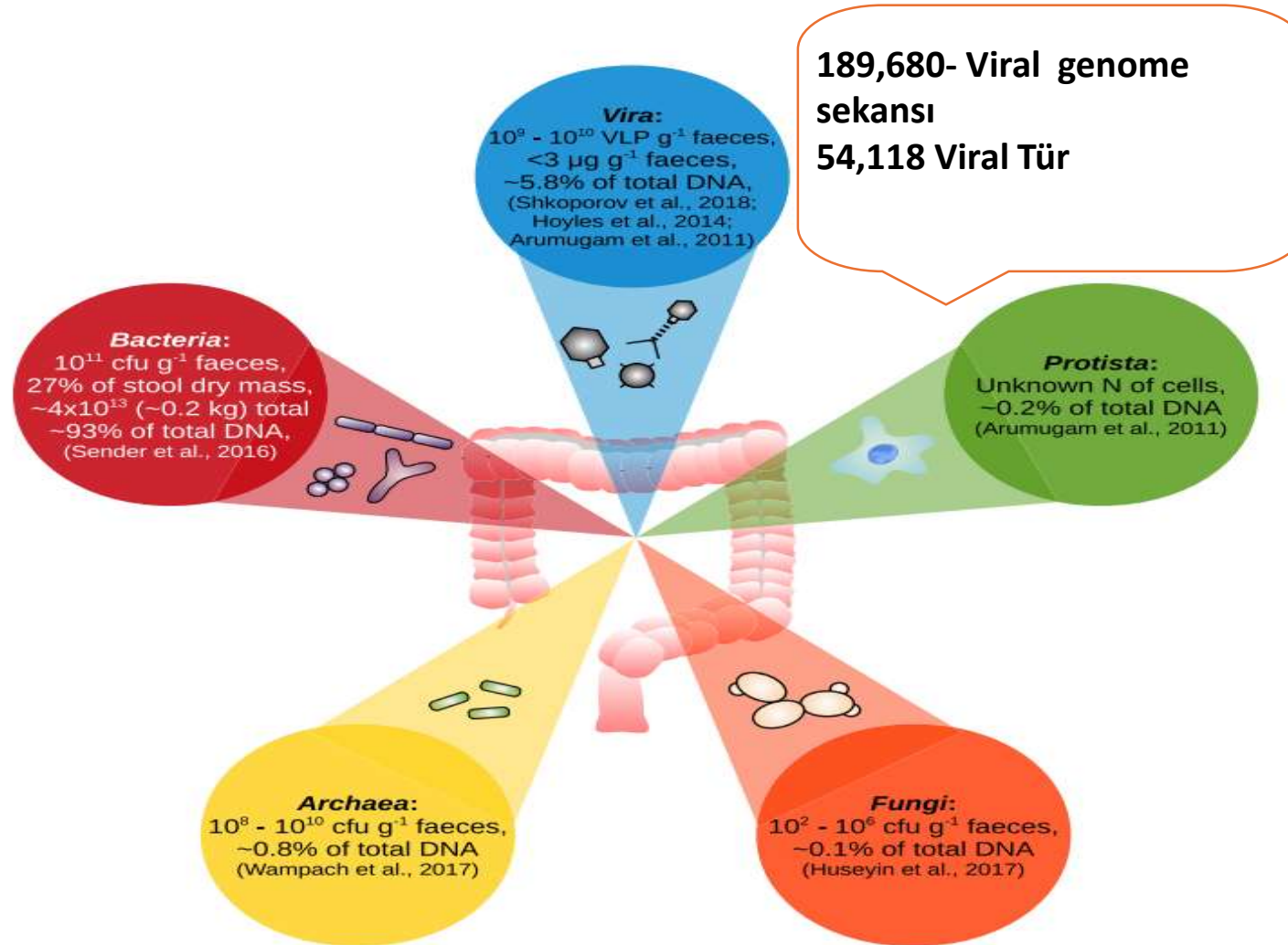


Mikrobiyal Disbiyozisin Solid Organ Nakli Sonuçlarına Etkileri

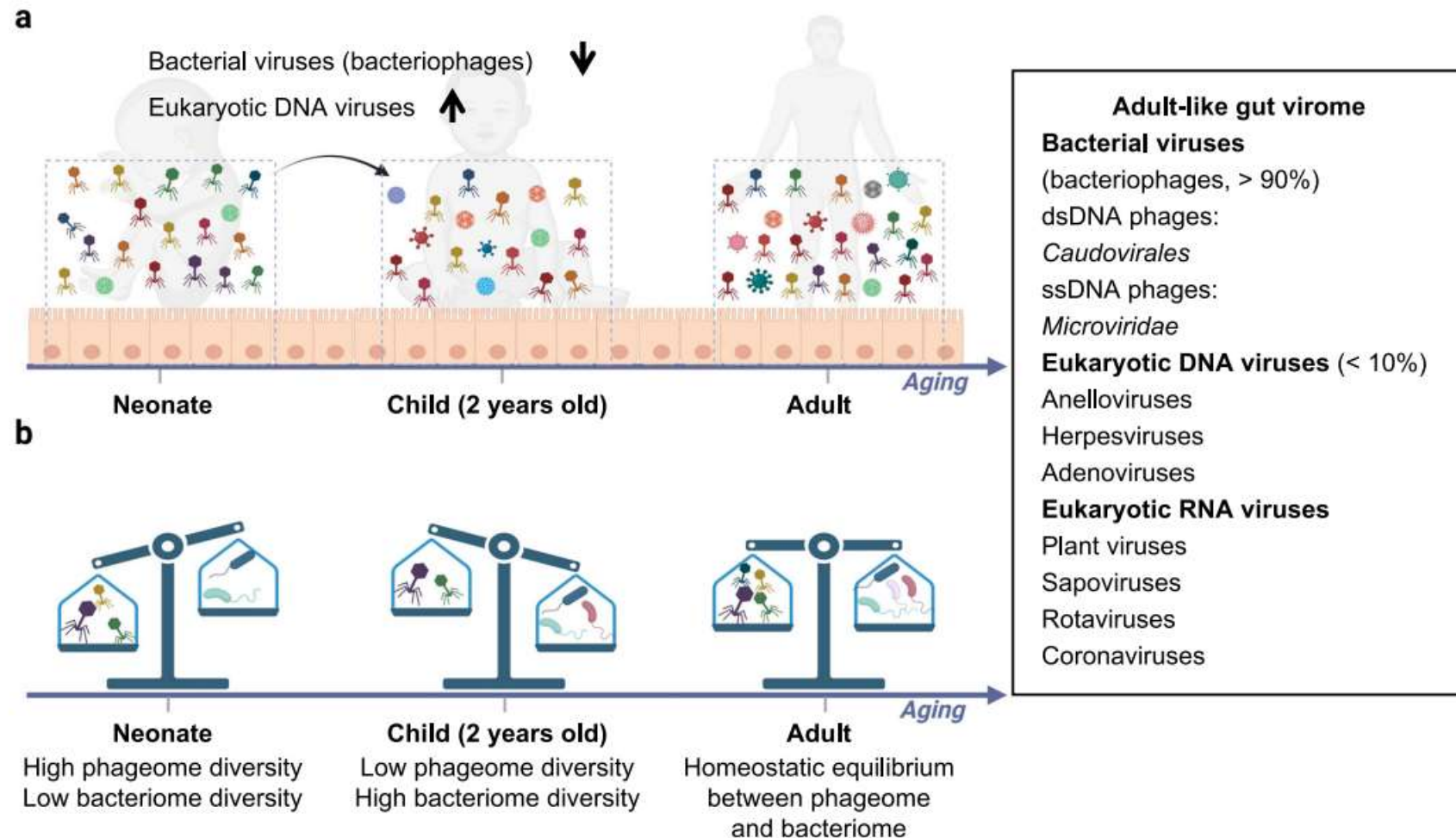


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Virom: Mikrobiyal Ekosistemin Sessiz Gücü

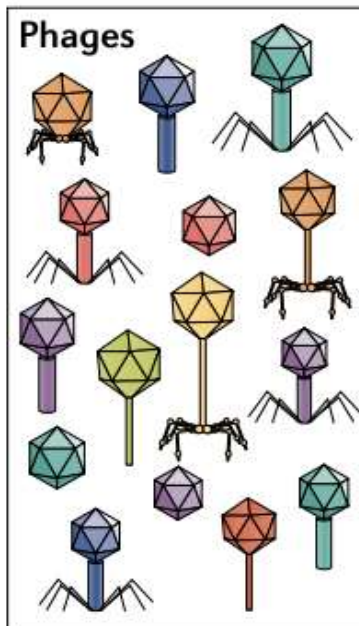
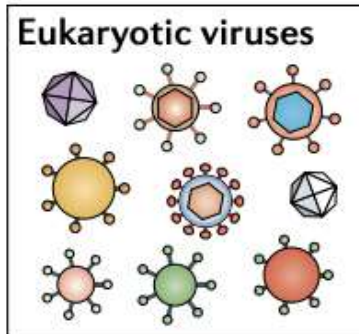


Virom: Mikrobiyal Ekosistemin Sessiz Gücü



Virom: Mikrobiyal Ekosistemin Sessiz Gücü

Oral cavity
Eukaryotic viruses Herpesviridae Redondoviridae Anelloviridae Papillomaviridae ~10 ⁸ VLPs per ml
Lung
Eukaryotic viruses Anelloviridae Redondoviridae Adenoviridae Herpesviridae Papillomaviridae
Gastrointestinal
Eukaryotic viruses Anelloviridae Adenoviridae Caliciviridae Picornaviridae Herpesviridae Circoviridae Virgaviridae ~10 ⁹ VLPs per g
Vagina
Eukaryotic viruses Anelloviridae Herpesviridae



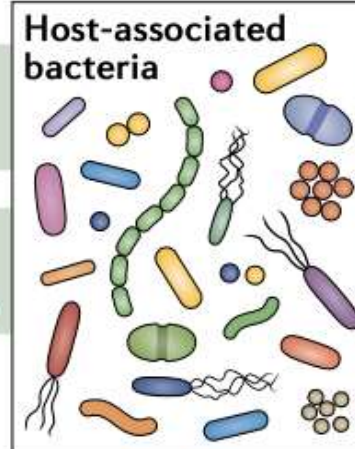
Cause acute and chronic infections

Protect the host from viral infections and trigger the development of innate immunity

Activate immune responses via TLR signalling

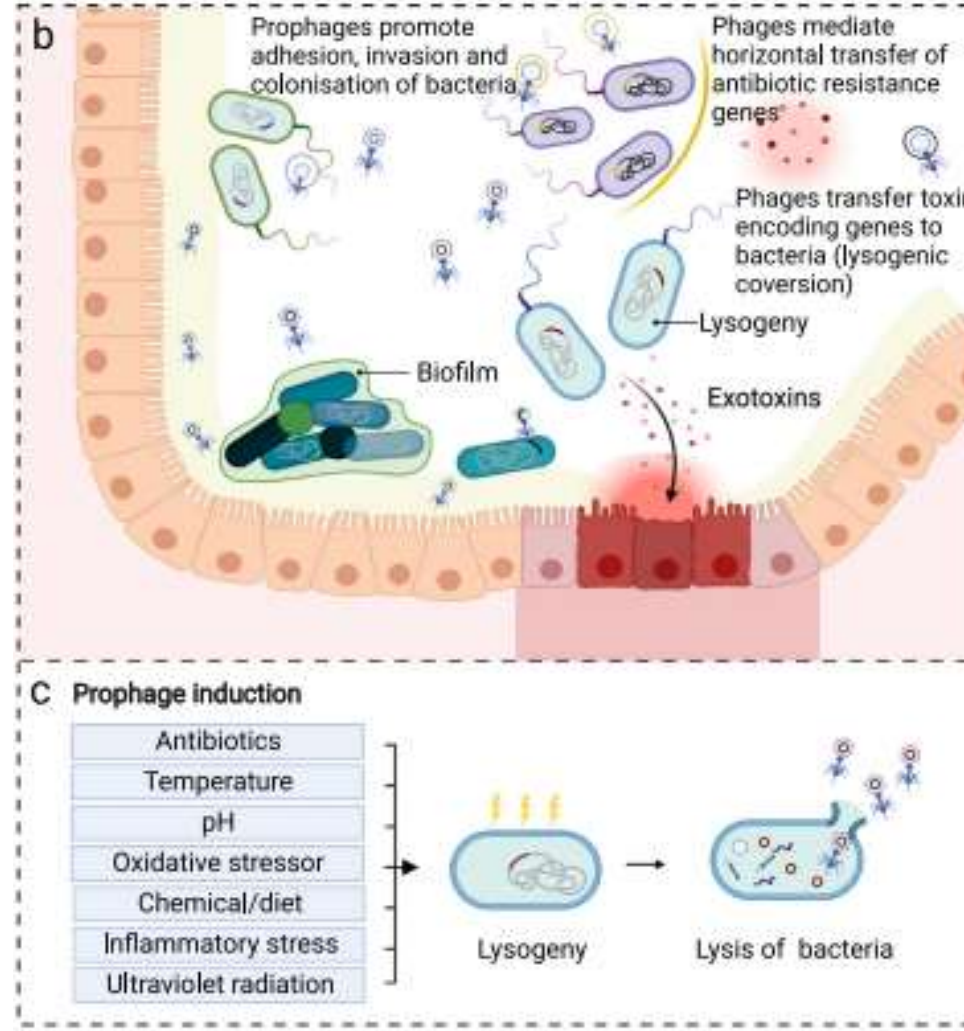
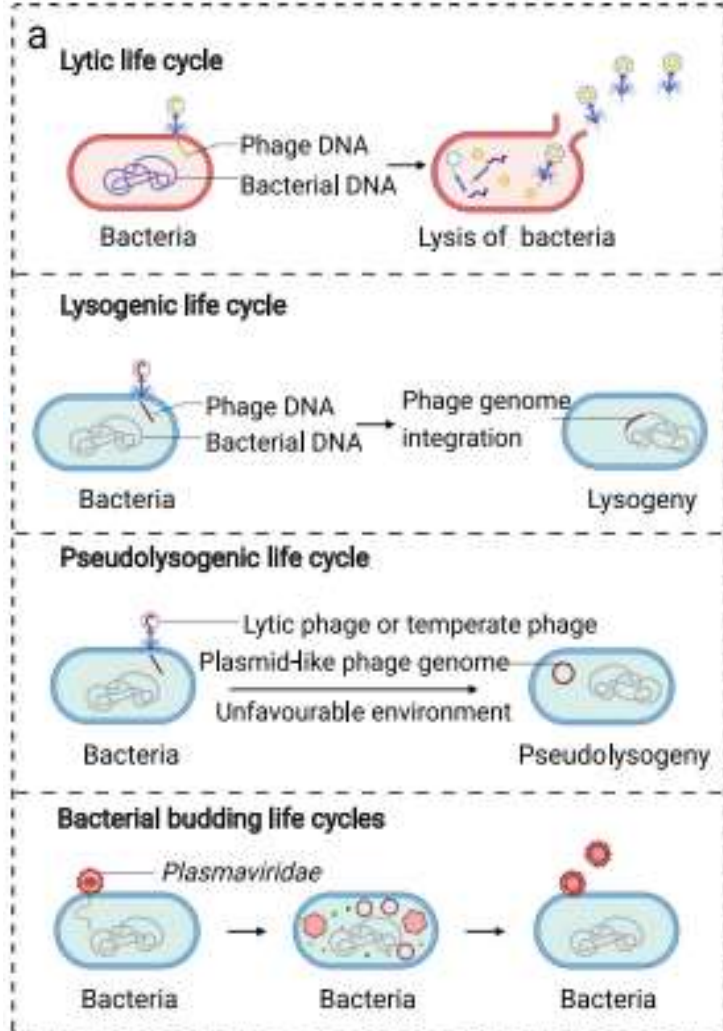
Modulate bacterial abundance

Transfer DNA and modify bacterial fitness and virulence

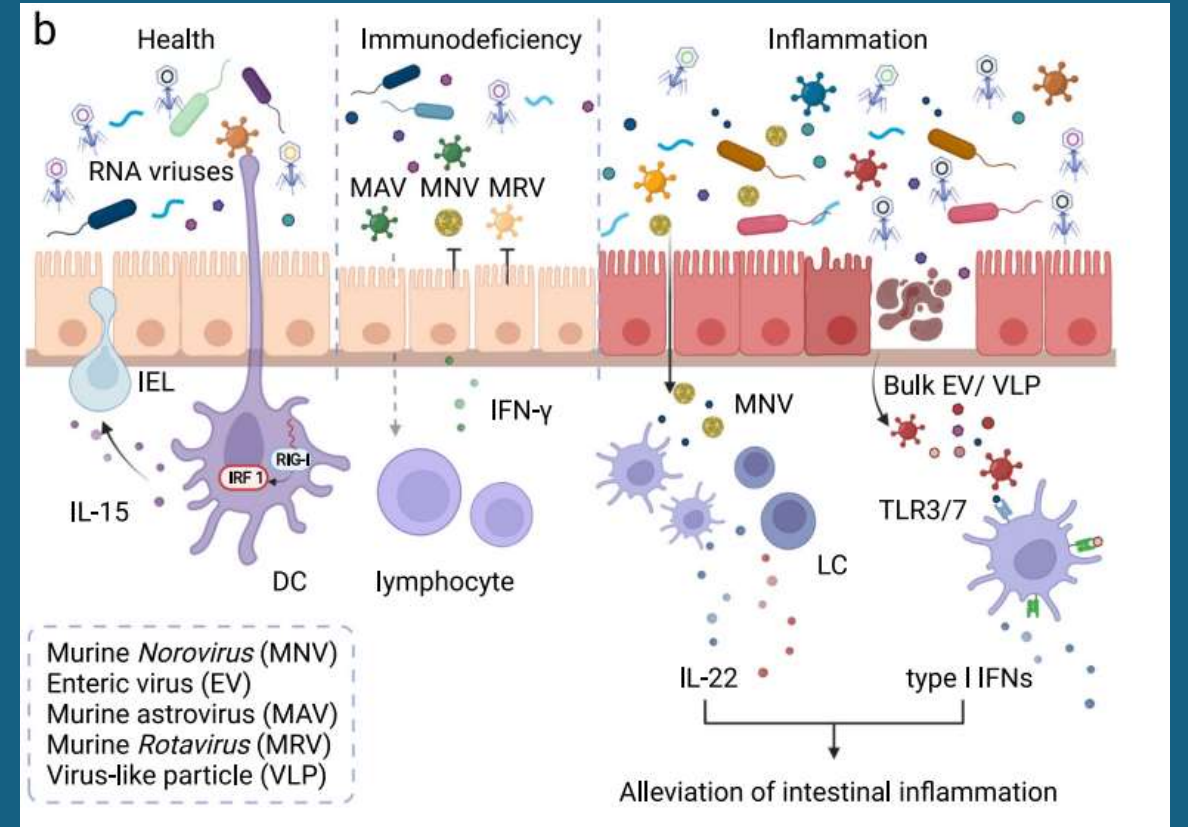
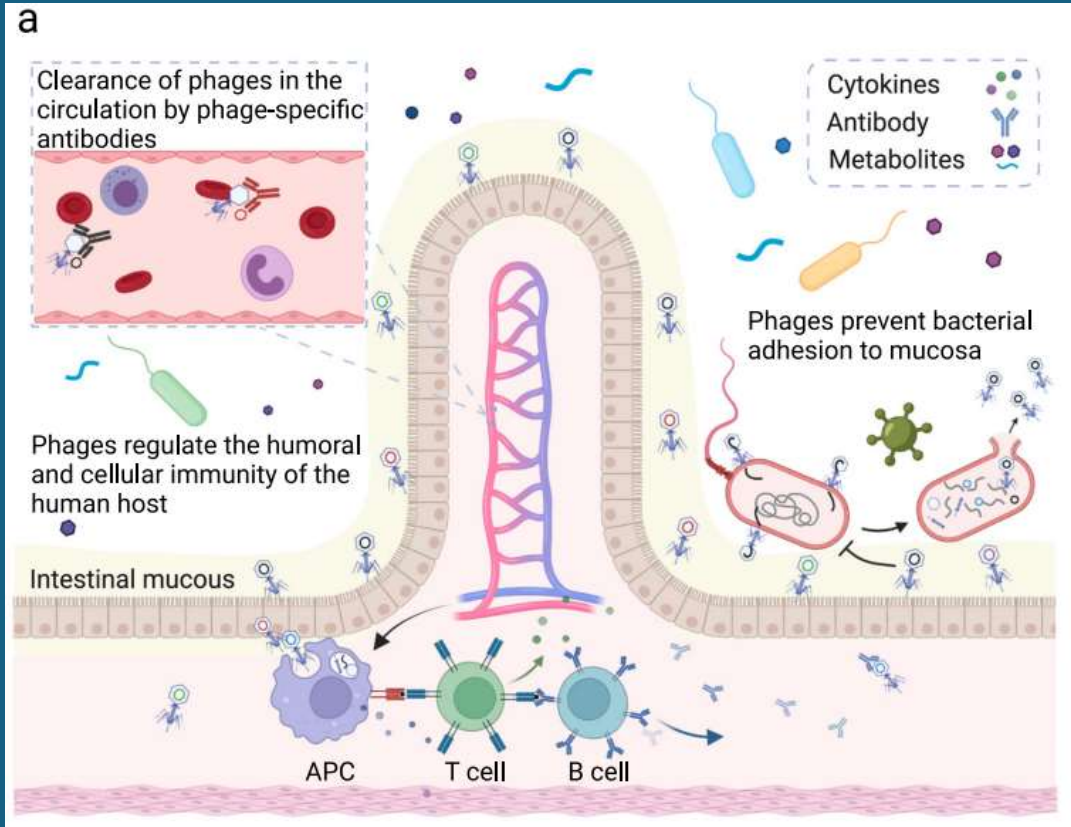


Oral cavity	Phages
Eukaryotic viruses Herpesviridae Redondoviridae Anelloviridae Papillomaviridae ~10 ⁸ VLPs per millilitre of saliva	Siphoviridae Podoviridae Myoviridae Inoviridae
Lung	Phages
Eukaryotic viruses Anelloviridae Redondoviridae Adenoviridae Herpesviridae Papillomaviridae	Siphoviridae Podoviridae Myoviridae
Gastrointestinal	Phages
Eukaryotic viruses Anelloviridae Adenoviridae Caliciviridae Picornaviridae Herpesviridae Circoviridae Virgaviridae ~10 ⁹ VLPs per millilitre of urine	Siphoviridae Podoviridae Myoviridae
Vagina	Phages
Eukaryotic viruses Anelloviridae Herpesviridae	Unknown

Bakteriler ve Virüsler Arasında Diyalog: Mikrobiyota İçindeki Çift Yönlü İlişki

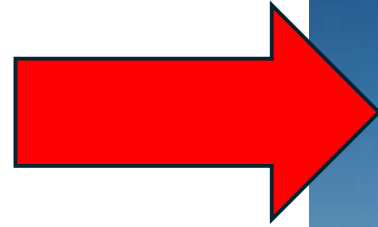


Bakteriler ve Virüsler Arasında Diyalog: Mikrobiyota İçindeki Çift Yönlü İlişki

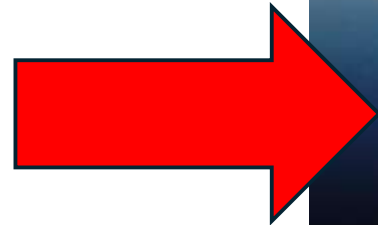


Latent Virüsler: Bağışıklık Baskısı Altında Uyanan Sessizlik

- ✓ CMV
- ✓ EBV
- ✓ BK virüs



- ✓ Anellovirüsler
 - TTV



İmmün Baskı Altında Virom: Reaktivasyon ve GVHD'nin Mikrobiyal İzleri



ARTICLE

 Check for updates

<https://doi.org/10.1038/s41467-020-20240-z>

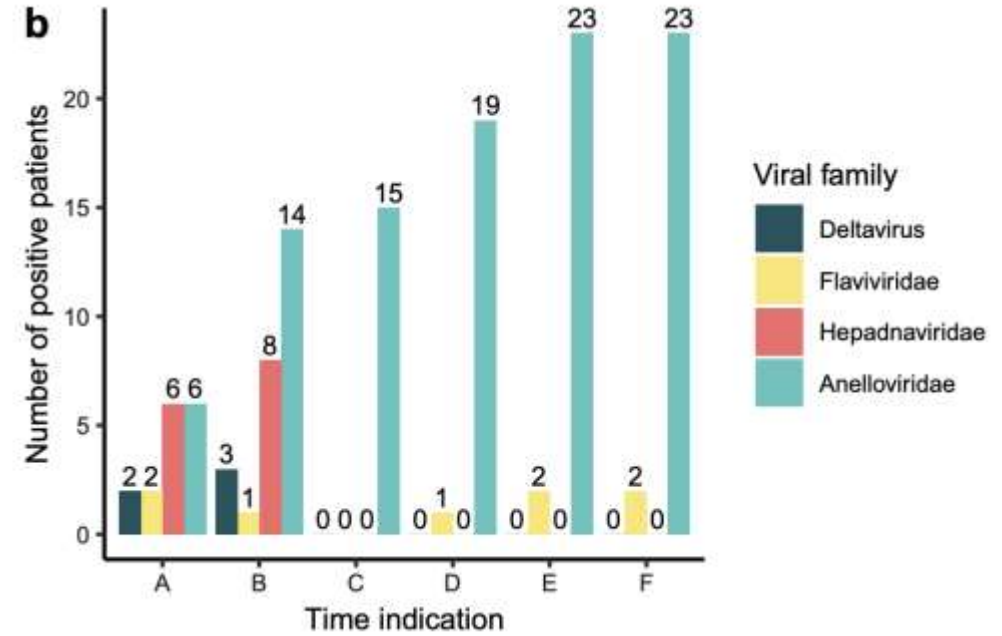
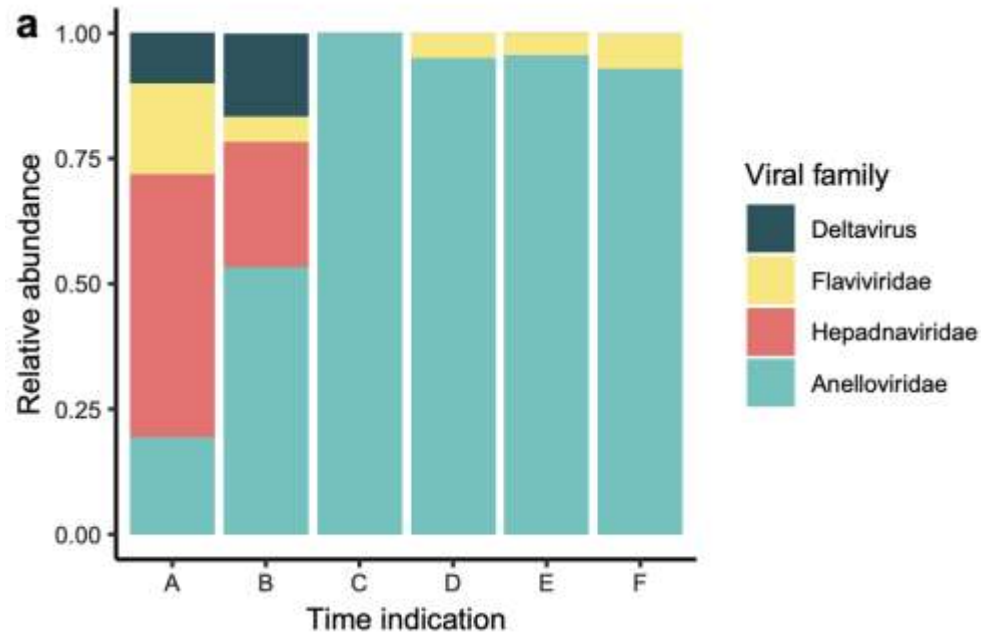
OPEN

Longitudinal dynamics of gut bacteriome, mycobiome and virome after fecal microbiota transplantation in graft-versus-host disease

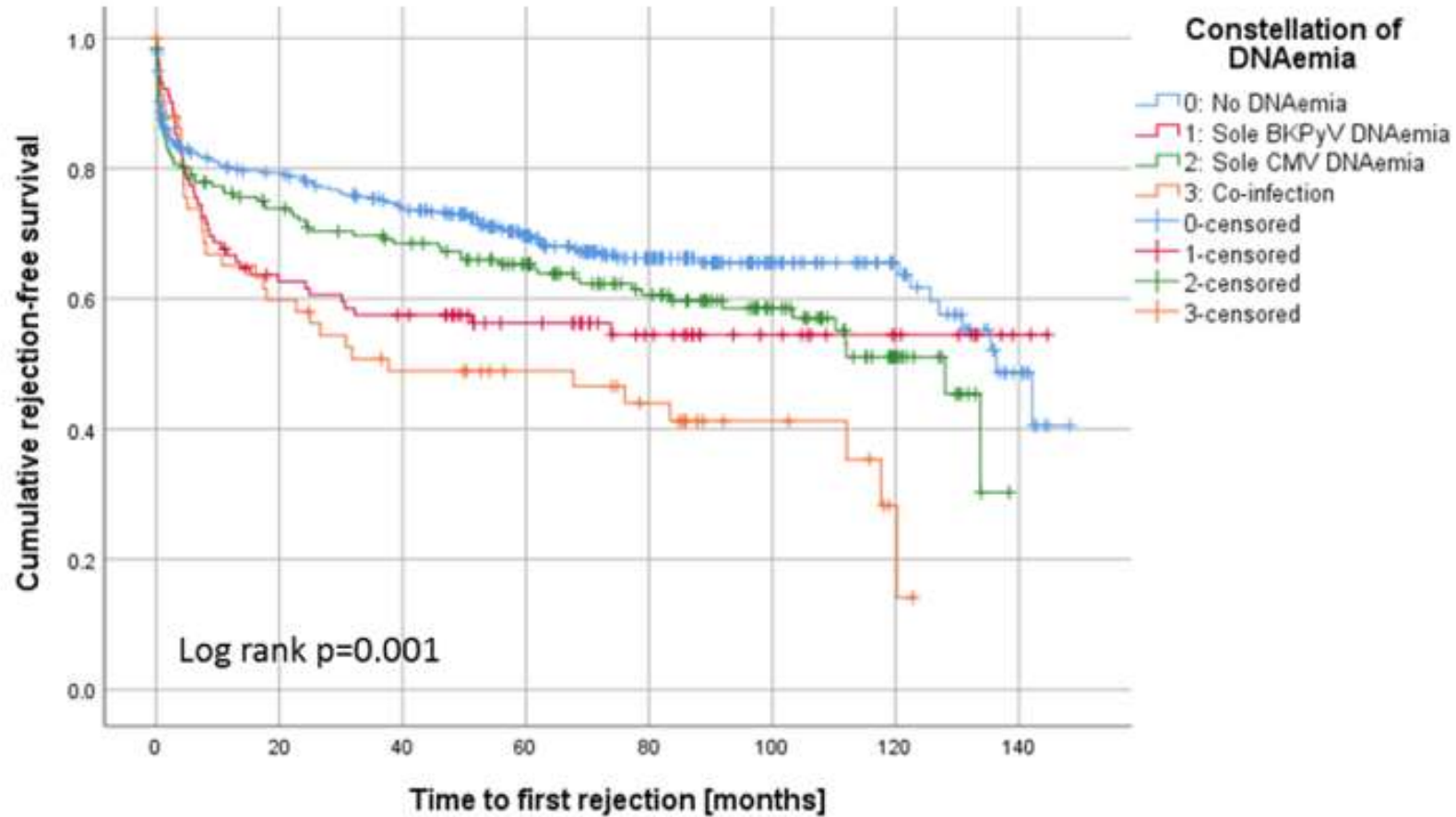
Fen Zhang^{1,2,5}, Tao Zuo^{1,2,5}, Yun Kit Yeoh^{1,3,5}, Frankie W. T. Cheng⁴, Qin Liu², Whitney Tang², Kitty C. Y. Cheung², Keli Yang², Chun Pan Cheung², Chow Chung Mo⁴, Mamie Hui^{1,3}, Francis K. L. Chan^{1,2}, Chi-Kong Li⁴, Paul K. S. Chan^{1,3,6} & Siew C. Ng^{1,2,6}

- FMT yalnızca bakteriyel disbiyozisi düzeltmiyor, aynı zamanda virom dinamiklerini de yeniden şekillendiriyor.
- Gelecekte, GvHD ve nakil hastalarında yalnızca bakteriyom değil, viromun da hedeflendiği tedavi yaklaşımlarını konuşuyor olabiliriz.

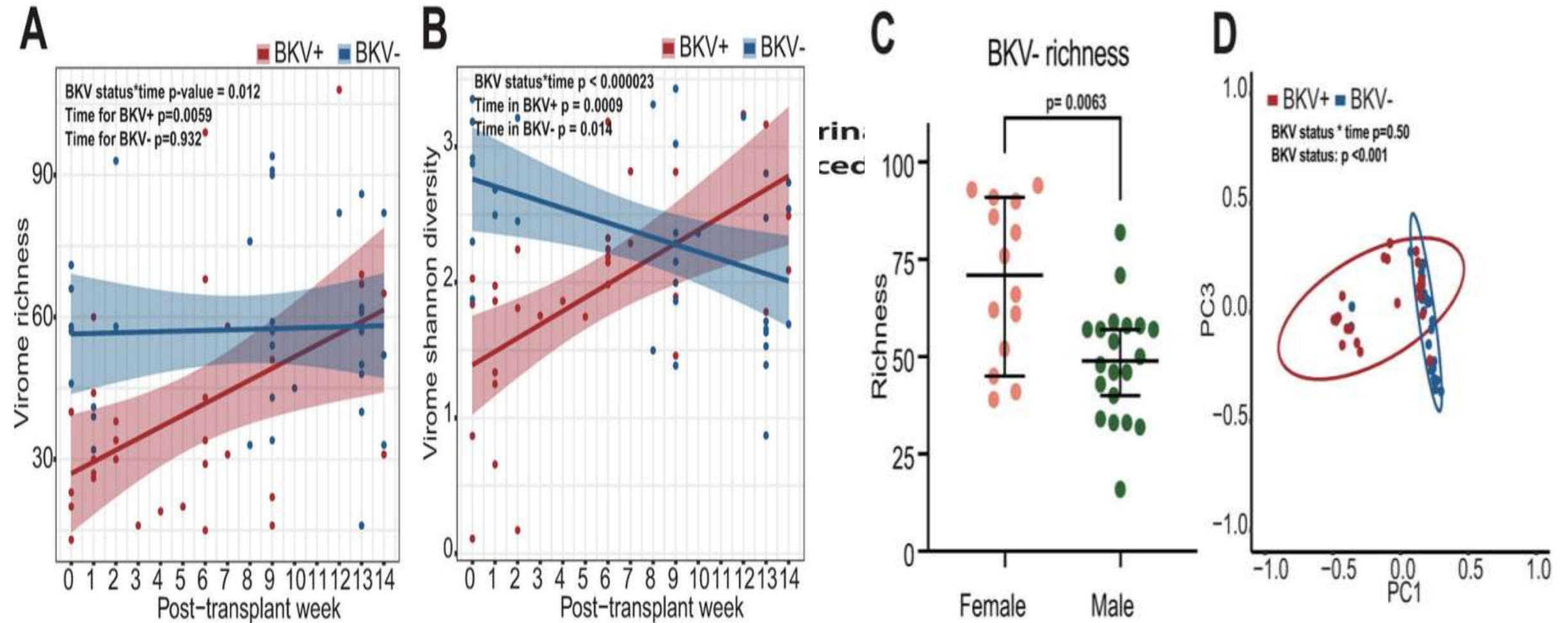
Karaciğer Naklinde Virom Dinamikleri: İmmünsupresyon ve Viral Reaktivasyonun İzleri



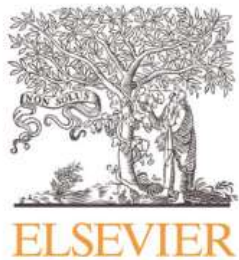
Transplant Sonrası Risk: CMV ve BK Virüs Reaktivasyon Senaryoları



Böbrek Naklinde Virom Dinamikleri: İmmünsupresyon ve Viral Reaktivasyonun Klinik İzleri



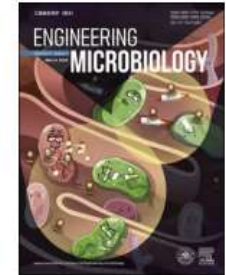
Tedavi Stratejileri – Probiyotikler, prebiyotikler, postbiyotikler.



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Engineering Microbiology

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Review

The gut virome and human health: From diversity to personalized medicine

Rahul Harikumar Lathakumari*, Leela Kakithakara Vajravelu, Anusha Gopinathan, Poornima Baskar Vimala, Vishnupriya Panneerselvam, Sujith Sri Surya Ravi, Jayaprakash Thulukanam

Department of Microbiology, SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, Kattankulathur, Chengalpattu, Chennai, Tamil Nadu 603203, India



Virom Analizi: Transplant Sonrası Standart İzlemin Bir Parçası Olacak mı?

- CMV/EBV PCR gibi klasik testlere ek olarak, TTV yükü → günlük pratiğe girebilir.
- Virom analizi ile:
 - Enfeksiyon ve rejeksiyon riskinin **erken öngörülmesi**,
 - İmmünsupresif ilaçların **dinamik olarak ayarlanması**,
 - Hastaya özgü ****“virom imzası”****na dayalı kişiselleştirilmiş takip mümkün olacak

*“Mikrobiyomu değil, viromu da görmezden
gelirsek, nakil hastasının kaderini eksik yazmış
oluruz.”*

*Future of Transplant Medicine =
Microbiome + Virome*



•4. Mikrobiyom–Virom Etkileşimi (5–6 slayt)

- **Çift Yönlü Etkileşim** – Disbiyoz → viral replikasyon artışı.
- **Virüslerin Mikrobiyomu Etkilemesi** – CMV reaktivasyonu sonrası flora bozulması.
- **Metagenomik Kanıtlar** – Yeni nesil sekanslama ile gösterilen ortak bozulmalar.
- **FMT ve Virom** – Fekal mikrobiyota transplantasyonu sonrası virom geçişi.
- **Etik Tartışma** – FMT ile latent virüslerin taşınması.
- **Klinik Örnek** – FMT yapılan bir hastanın vaka raporu.

FMT ve Virom – Fekal mikrobiyota transplantasyonu sonrası virom geçişi.

Zuppi et al. *Microbiome* (2024) 12:122
<https://doi.org/10.1186/s40168-024-01833-w>

Microbiome

RESEARCH

Open Access

Fecal microbiota transplantation alters gut phage communities in a clinical trial for obesity



Michele Zuppi¹, Tommi Vatanen^{1,2,3,4*}, Brooke C. Wilson¹, Evgeniia Golovina¹, Theo Portlock¹,
Wayne S. Cutfield^{1,5}, Mark H. Vickers^{1,5,6} and Justin M. O'Sullivan^{1,6,7,8,9,10*}