

Diyetin İnsan Bağırsak Mikrobiyomu Üzerindeki Etkileri ve Sonrasında Konak Fizyolojisi ve Metabolizması Üzerindeki Etkisi

Bryna Rackerby, Daria Van De Grift, Jang H. Kim, and Si Hong Park

1 Giriş

Bağırsak mikrobiyomu, insan ve hayvanların gastrointestinal sisteminde yaşayan temel olarak bakterilerden oluşan bir mikrobiyal ekosistemdir. Konak genetiğinin, diyet ve çevre de dahil olmak üzere çeşitli faktörlerden etkilendiği düşünülmektedir (Zoetendal ve ark. 2001). Bağırsak mikrobiyomu, bağışıklık sisteminin düzenlenmesi, organ gelişimi, konak metabolizması (Sommer ve Bäckhed 2013), ve bağırsak mukozasının yapısal bütünlüğünün korunması da dahil olmak üzere konak için hayati önem taşıyan birçok işlevi yerine getirir (Jandhyala ve ark. 2015). Son zamanlarda, bağırsak mikrobiyomunun davranışları bile değiştirebildiği bulunmuştur (Sommer ve Bäckhed 2013). Bağırsak mikrobiyotasının metabolik gücü karaciğerinkine eşittir ve genetik potansiyeli, tek başına insan vücudununkinden iki kat daha fazladır (Sommer ve Bäckhed 2013); bu nedenle, insan bağırsak mikrobiyomu genellikle ek bir organ olarak kabul edilmektedir (Sommer ve Bäckhed 2013; O'Hara ve Shanahan 2006; Quigley 2013; Clarke ve ark. 2014). Bağırsak mikrobiyomunun inflamatuvar bağırsak hastalığı (IBD), astım, obezite, diyabet (Shen ve Wong 2016) ve kardiyovasküler hastalıklar (Sandoval ve Seeley 2010) gibi hastalıklarda rol oynadığı düşünülmektedir. Mikrop-lardan yoksun hayvanlar üzerinde yapılan çalışmalarla, bağırsak mikrobiyomunun gerçekten de bağışıklıkta rol oynadığı belirlenmiştir (O'Hara ve Shanahan 2006; Shen ve Wong 2016). Normal bağırsak mikrobiyomu öncelikle Firmicutes ve Bacteroidetes filumlarından oluşur (Sommer ve Bäckhed 2013; Jandhyala ve diğerleri 2015), ancak Proteobacteria, Verrucomicrobia, Aktinobakteriler, Fusobacteria ve Cyanobacteria üyeleri de mevcuttur (Sommer ve Bäckhed 2013).

Bağırsak mikrobiyomunun konak metabolizması işlevlerine yoğun katkısının bilinmesine rağmen (Sommer ve Bäckhed 2013; Quigley 2013; Clarke ve diğerleri 2014; Faderl ve diğerleri 2015), mekanizma tam olarak anlaşılamamıştır (Sommer ve Bäckhed 2013). Bağırsak mikrobiyotası besinler, ksenobiyotikler ve safra asitleri de dahil olmak üzere bileşenlerin metabolizmasına yaptığı katkının yanı sıra kısa zincirli yağ asitleri, K vitamini, B vitamini bileşenleri gibi diğer önemli bileşenlerin üretimine de

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