# Bölüm 14

# MRL Modeli: Otoimmünite-Beyin Etkileşimlerinin İncelenmesinde Değerli bir Araç

**Çeviri: Dr. Banu TAMAM**

## Özet

Sistemik otoimmünite, beyin patolojisi ve anormal davranış arasındaki bağ biyomedikal bilimin hala geniş ölçüde araştırılmamış bir alanıdır. Elde biriken kanıtlar immün etmenler, nörodejenerasyon ve nöropsikiyatrik gösterimler arasında nedensel ilişkilerin varlığını işaret etmektedir. Otoimmüniteye eşlenik nöronal yozlaşma ve hasta kişilerden alınan beyin-omurilik sıvısının sitotoksisitesinin belgelenmesi ile fare MRL modelinin ana patojenik devreleri ortaya çıkarmada yüksek güvenirliğe sahip olduğu ortaya konulmuştur. Ek olarak, diğer herhangi bir otoimmün soydan farklı olarak, MRL fareler lupus ve diğer otoimmün hastalıkları olan hastalarda sık bulunan antikorlar üretmektedir. Bu yayın taramasında immün sistem ile beyin işlevi arasındaki bağları anlamamızda yararlı bir preparat olarak MRL modelinin taşıdığı öneme dikkat çekilmektedir.

**Anahtar sözcükler** Otoimmünite, Lupus, Davranışsal disfonksiyon, Nörodejenerasyon, İmmünopsikiyatri, Hayvan modeli

## 1 Giriş

### *1.1 Düzenleyici Metasistem*

Yaşamın temel ilkesi aralıksız değişen ortama uyum sağlamak ve böylece kişinin sürvisi ile türün devamı için gereken temeli sağlamaktır. Dışsal ve içsel stresörlerle zorlandığı zaman memelilerde işlevsel homeostaz kendisini, düzenleyici metasisteme ait koordine bir ağ ile ayarlar ve bu metasistem sinir, endokrin ve immün sistemler arasındaki farklı etkileşimlerden oluşur (Şekil 1). Sinir sistemi iç salgı bezleri ve bağışıklık organlarına otonom lifler ile bağlanırken bağışıklık sistemi diğer dokularla sitokinler, kemokinler ve kompleman sisteminin proteinleri gibi çeşitli solübül haberciler salgılayarak iletişim kurar [1]. Bu aracılar vagus ve diğer sinirleri aktive ederek [2] ve beyin damarlarındaki endotel hücrelere ait ikincil haberci sistemi üzerinden giderek [3] veya kan-beyin engeli daha geçirgen hale gelmişse beyin parankimasına difüze olarak beyin işlevini etkileyebilir. Bu faktörler, hipotalamo-hipofizo-adrenal eksen gibi ana

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