

Bölüm 4

PIWI-ETKİLEŞİMLİ RNA'LAR (PIRNA): TANIMI VE HASTALIKLARDAKİ ROLÜ

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GİRİŞ

İnsan genomunun yaklaşık %2'sinin protein kodladığı, geriye kalan büyük çoğunluğunun fonksiyonel olmadığı anlaşılmış; her ne kadar ncRNA'lar daha önce “evrimsel çöp” olarak görülse de, yeni araştırmalar bunların birçok bağlantı yolunu önemli ölçüde değiştirdiğini gösteriyor. Yeni nesil derin dizileme gibi son teknolojik gelişmeler, genomun büyük bir kısmının RNA'lara çevrildiğini göstermiştir. ncRNA'nın, gen susturmaya katkıda bulunmak için DNA'ya bağlanarak çekirdekte veya protein ekspresyonunu etkilemek için mRNA'yı düzenleyerek sitoplazmada işlev gördüğü ve temel hücresel süreçleri düzenleyen, büyüyen bir molekül ailesini içerdiği keşfedilmiştir (1). ncRNA'lar, düzenleyici ncRNA'lar ve hizmetçi ncRNA'lar olmak üzere farklı işlevlere sahip iki grup altında incelenmiş ve düzenleyici ncRNA'lar da transkript boyutuna göre uzun kodlamayan RNA (lncRNA)'lar ve kısa kodlamayan RNA (sncRNA)'lar olarak sınıflandırılmıştır. Kısa ncRNA da miRNA (mikroRNA), siRNA (küçük karışan RNA) ve piRNA (PIWI etkileşimli RNA) sınıflarından oluşmaktadır (2). 24-32 nükleotit (nt) büyüklüğünde bir sncRNA molekülü sınıfı olan piRNA'lar, argonaute proteinlerin (AGO) bir alt ailesi olan PIWI (P elementi ile indüklenen

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