

## Bölüm 14

# KODLANMAYAN RNA'LAR VE KANSER

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### GİRİŞ

Ulusal İnsan Genom Araştırma Enstitüsü (The National Human Genome Research Institute, NHGRI) 2007 yılında insan genom dizisinde tüm işlevsel unsurları belirlemek için, DNA Elementleri Ansiklopedisi (Encyclopedia of DNA Elements, ENCODE) projesi adında bir kamu araştırma konsorsiyumu başlattı. Bu projelerden elde edilecek en önemli çıktılardan birisi, genomun büyük çoğunluğunu oluşturan ncRNA transkriptlerinin tanımlanmasıydı. ENCODE projesi, insan genomunun en az %75'inin RNA transkriptlerini kodladığını, protein kodlayan genlerin insan genomunun sadece %3'ünü içerdiğini ortaya koymuştur. Protein kodlayan genlerin 3'/5' translyasyona uğramayan bölgeleri ve intronik bölgeleri de çıkartılınca yalnızca %1.5-2'lik kısmın protein kodlayan ekzonik bölgeleri içerdiği tespit edilmiştir. Uzun yıllardır bilim insanlarının protein merkezli önyargıları nedeniyle, ncRNA'ların transkripte edildiği genomik bölgelerin çoğunluğu genomda "önemsiz" olarak görülmüştür ve bu bölgelerden transkripte edilen ürünün biyolojik önemi olmayan transkripsiyonel bir "atık" olduğu kabul edilmiştir<sup>1,2</sup>.

Genomun tamamı protein kodlamamaktadır, lakin çoğu kısmı transkripte edilmektedir. İşlevleri tam olarak açıklanamayan transkriptlerin birçok hastalık ile ilişkisi olabileceği fikri ortaya atılmıştır ve bu alanda birçok çalışma yapılmıştır. Geçtiğimiz son on yılda, ncRNA transkriptlerinin biyolojik fonksiyonunun ve klinik öneminin anlaşılmasında çok sayıda çalışma yapılmıştır.

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**Anahtar Kelimeler:** kodlanmayan RNA, lncRNA, piRNA, circRNA, T-UCR, NAT

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