

Bölüm 5

ADLI GENETİKTE GÜNCEL YAKLAŞIMLAR

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“Siz bu yazıyı okumaya başladığımızdan beri saniyede milyonlarca kez nerdeyse tüm hücrelerimizde metilasyon meydana gelmektedir.”

GİRİŞ

Olay yerinde bulunan biyolojik örnekler, kriminal anlamda var olan şüphelilerin belirli bir yer veya delil ile doğrudan ilişkilendirilmesini sağlarlar. Olay yerinde bulunan tükürük, kan ve semen gibi çeşitli vücut sıvıları ile doku parçaları, saç, kıl gibi biyolojik materyallerden DNA'nın ekstrakte edilebilmesi, kişilerin kimliklendirilmesindeki en önemli noktadır. Dünya üzerinde yaşamış ve hali hazırda yaşayan kişilerin DNA profilleri arasındaki genetik varyasyonlar, adli genetik açısından suçla ilişkili kişinin belirlenmesinde önemli bir güç sağlamaktadır.

Adli genetik alanında çalışma konuları arasında yer alan en önemli epigenetik mekanizmalar; DNA metilasyonu, histon modifikasyonları, baskı yapan ve kodlamayan RNA'ların kaybı mekanizmalarıdır. Bu mekanizmalardan özellikle sitozinlerin 5. karbonunda görülen DNA metilasyonu, DNA'nın esnekliğine sebep olarak gen ifadesini etkilemektedir. Günümüzde DNA metilasyonları analizinde genellikle altın standart olarak bisülfat dönüşümleri kullanılmaktadır.

Geçmişten günümüze kadar bireylerin saç ve ten rengi, boy uzunluğu gibi gözle görülebilir fiziksel özelliklerine (EVC- Externally visible characteristics) ilişkin bilgi edinebilmek adına yapılan DNA analizlerinde; karakteristik EVC markırları, pigmentasyon ile ilişkili SNP (Tek Nükleotik Polimorfizmi) ve sT-REC DNA testi, STR, mtDNA ve Indel gibi birçok farklı uygulama kullanılır.

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