KANSER BİYOİNFORMATİĞİ

36. BÖLÜM

Gonca ALTINIŞIK İNAN [1]
Mustafa ALTAN 2

GİRİŞ

Biyoinformatik özellikle DNA, RNA gibi büyük makromoleküllerden edinilen biyolojik bilginin bilgisayar desteği ile toplanması, işlenmesi ve analiz edilmesidir. Disiplinler arası bir bilim olan biyoinformatik sayesinde elde edilen yüksek veri yükü depolanabilmekte, oluşturulan veri tabanları sayesinde kurulan bazı hipotezlerin yanıtları laboratuvar çalışmalarına gerek duymadan elde edilebilmektedir. Kullanılan biyoinformatik yöntemlerin uygunluğu ve güvenilirliği elde edilen verilerin kalitesini de belirlemektedir. Özellikle sağlık bilimlerinde önemi ortaya çıkan biyoinformatik kanser araştırmalarında da gün geçtikçe önem kazanmaktadır. Son dönemde onkolojide klinik ve translasyonel çalışmalarla elde edilen oldukça büyük veri havuzu biyoinformatik sayesinde farklı araştırmacılar tarafından değerlendirilebilmekte, farklı hipotezler için veriler tekrar kullanılabilmektedir. Bu veriler sayesinde sentezlenebilecek olan proteinler, bunların alacağı şekil, hangi genetik anomaliliğin hangi kanserin etyopatogenezinde yer aldığı gibi birçok onkolojide çığır açacak veriye ulaşılabilecektir. Daha da önemlisi yeni nesil sekanslama tekniklerinin dünya genelinde ulaşılabilir hale gelmesi ile kişiselleştirilmiş onkolojik tedaviler ortaya çıkmaya başlayacaktır (1).

Tüm bu sayılan faydalar için elde edilen verilerin bilimsel kalitesi oldukça önemlidir ve bunda en büyük belirleyici uygun biyoinformatik yöntemlerin ve veri tabanlarının kullanılmasıdır.

1. KANSER İLİŞKİLİ VERİ TABANLARI

Kanser biyoinformatik çalışmalarında kullanılan farklı veri tabanları mevcuttur. (Tablo 1)

Bunların çoğuna çok az kısıtlama ile erişim mümkündür. Tablo 1 de örnekleri verilen genel

Tablo 1. Kanser çalışmalarında kullanılan bazı genomik veri tabanları

The Cancer Genome Atlas /TCGA (2)	TCGA konsorsiyumu tarafından elde edilen verilerin incelenebileceği veri tabanı
Cancer Cell Line Encyclopedia (CCLE)(3)	İnsan kanser modellerinin hem genetik hem de farmakolojik karakterizasyonlarının yürütüldüğü platform
Therapeutically Applicable Research to Generate Effective Treatments (TARGET) (4)	Çocukluk çağı kanserine neden olan moleküler değişikliklere odaklanan kapsamlı kaynak
International Cancer Genome Consortium (ICGC) (5)	50 farklı tümör tipine veya alt tipine bakmakla ilgilenen ve bunların genomik, transkriptomik ve epigenetik değişikliklerini kapsamlı bir şekilde tanımlayan bir konsorsiyumdur.

[1] Dr. Öğr Üyesi, Ankara Yıldırım Beyazıt Üniversitesi Tıp Fakültesi Radyasyon Onkolojisi ABD- Ankara Şehir Hastanesi Radyasyon Onkolojisi Kliniği, goncaaltinisikinan@gmail.com ORCID iD: 0000-0002-7385-3480
[2] Uzm. Dr., Ankara Şehir Hastanesi Tıbbi Genetik Bölümü, mustafaltan@gmail.com ORCID iD: 0000-0002-8998-3087

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