The digital ECMT cancer trial finder: computational support for cancer trial matching

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Background
Cancer precision medicine has the potential to select the treatment a patient is most likely to respond to based on the molecular drivers of their disease. However, understanding the clinical and functional significance of genomic data presents a substantial challenge to the implementation of precision medicine in the clinical setting. Software tools are essential in adding value to genomic data due to the volume of data, the requirement to integrate with other data from disparate sources and the need to map between those sources. Here we present a patient trial matching tool intended to support clinicians in the identification of potential precision medicine trials based on patients’ tumour genomic profiles.

Methods

Data sources
clinicaltrials.gov
NCBI
NCI nh
KEGG

Mapping between cancer type synonyms
Cancer type = Prostate
Condition = Metastatic Castration Resistant Prostate Cancer

Natural language processing of eligibility criteria
Criteria type = Inclusion

Pathway information for trial drugs
Pathway ID: AZD5363 = capivasertib

Ordering of results

Results

• The trial finder is freely available at https://trialmatch.digitalecmt.com/
• Clinicians can search for matching studies based on cancer type, genetic alterations, study drug mechanisms and study locations, or any combination of these.

Discussion
We have developed a prototype decision support system that synthesises clinical trial data and external large, publicly available datasets. The results are presented in a format that augments a clinician’s ability to identify potential matching trials.

We continue to work with clinicians to further develop and improve the quality of the underlying data and the functionality of the system. Future research will focus on the measurement of the potential benefit of this system in supporting clinical decision making.

Conclusions

• Software tools can offer benefits for clinicians to support treatment decisions, particularly in precision medicine, by aggregating large volumes of data from multiple sources.
• Clinician feedback is critical to refine both the analyses and the way the results are presented so that the results are relevant, meaningful and usable in the clinical setting.

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