Abstract

Cancer is one of the major diseases that are on the rise getting bestowed "the silent pandemic". The cancer treatment arena is taking a turn from the traditional management methodologies to a more personalized approach. This change is brought about by the genomic knowledge boost following human genome project. Yet, it has also known that translation of this overwhelming amount of research to routine practise is quite challenging, and there are no well known projects which have taken use of the already available data and provide onsite management guidance to clinicians.

I present a Patient Centred Cancer Genomic Information Retrieval Tool for Oncologists, which utilises information currently available on the internet and help oncologists take management and investigative decisions depending on the clinical and genomic condition of each patient. This modular solution takes a clinical note and/or SNP list as an input and produces a list of abstracts which has key words identified and highlighted. It utilizes the Genis. Sentence Splitter and Genia Tagger to identify key words in the clinical note and derive the semantic meaning of the key words by parsing it using the National Cancer Institute's Cancer Ontology, which is processed using the OWL API and the HermiT Ontology reasoner. This information is used to query the UCSC GWAS catalogue and COSMIC database and a relevant set of publications are produced. When a SNP list is given, similarly at search the said databases and find relevant publications. These publications are then processed with key word extraction and presented to the user who can take knowledgeable decisions on the patient.

System was tested with 30 clinical notes which came up with relevant publications in 18 (60%) with 56% average relevance to the core problem of the patient in the clinical paradigm. 8 (26.6%) clinical notes came up with completely irrelevant publications. 10% (3) clinical notes did not come up with any publications while 1 clinical note (3.3%) gave error.