The MolecularMatch genotype based therapeutics and clinical trials search engine

Welsh JW[1,3], Tackes N[1], Neeley S[1], Davis CF[1], Corless CL[2], Li XS[1*]
[1]MolecularMatch, Inc, [2]Knight Diagnostic Laboratories, Oregon Health and Science University, [3]Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center

Clinical trials are where modern drug development and molecular diagnostics converge in translating research into clinical practice. MolecularMatch incorporates molecular pathway and condition specific subtypes information to identify potential clinical trial participants based on genotype, diagnosis, location, and medical history. Over 50,000 searches have been conducted on the open access molecularmatch.com website to date. The core search technology utilizes ElasticSearch (ES) and is hosted on Amazon Web Services. Beginning with aggregated data sets stored in a NoSQL database MongoDB, ES catalogues individual records as root terms with >15 additional synonyms. ES then creates indexes of clinical trials, publications, and drugs records with a metadata layer of conditions, genes, drugs, variants, etc. The ES engine also powers a new user interface (UI) for molecular pathologists and geneticists. Using synonyms to accommodate different transcript preferences and HGVS variation in the literature, variant records are based on protein and mapped to multiple underlying allelic variants. Through the API or UI more than 4000 variants across 1000 cases can be classified as actionable, unknown or polymorphism, with condition awareness, in just 2min following data upload. MolecularMatch is assay technology agnostic, supporting clinical interpretation of copy number variations, mRNA or protein expression levels, and translocations. Laboratories can create and implement consistent recommendations, track variants of unknown significance over time, and share relevant information across institutions and disciplines. By facilitating communication between molecular pathologists/geneticists in diagnostic laboratories with clinicians, MolecularMatch seeks to improve clinical trial enrollment and identify areas of unmet need for future trial designs.

TMC X | Suite 220
2450 Holcombe Blvd
Houston, TX 77021

info@molecularmatch.com

molecularmatch.com