MolecularMatch Trial Search Update (July, 2019)

MolecularMatch was founded on idea of making clinical trial search better. Better for doctors, better for patients, better for health technology integrators. The scoring algorithm we developed, patented, and continually improve, is how we deliver this value.

With our search engine expertise, we have created the most clinically relevant and user friendly trial search in the industry. Our goal is that the most relevant results show up in the top 10 for any clinical oncology search. This means patients have a better chance to get the right treatment.

Trials are continually updated, scored, and sorted for you to easily incorporate into your products. You will find them in our API or Portal.

- Trial Search API
- Search Portal Application

Search Filtering

The most important factor affecting your search results is what filters are matched, and what is filtered out because of your inputs. Inputs span everything from Age, Mutation to Geo-Location and more.

Your inputs are matched to different parts of the trial like title, summary and inclusion criteria. When inputs match exclusion criteria, those trials are filtered out from the results.

Scoring System Explained

Trials are accessed through API endpoints or search portals. They are returned sorted based on a highly advanced scoring system. Through extensive testing with M.D. and Ph.D. oversight, we've developed a search engine that is most likely to have results relevant to your case.

Scores are made up of a combination of intrinsic and extrinsic values.

Intrinsic scores are related to attributes of the trial, such as:

1. Trial Types (scores adjust up or down).
2. Phase (III > II > I)

The extrinsic score is calculated at search time by matching your search criteria to information on the trial. For example, terms matched in the title are given preference to terms found in the summary automatically. However, the curation continuously overrides this logic by adjusting the priorities of terms based on their scientific understanding of the trial.

Trial Types for Score Adjustments

Trial Types influence the intrinsic score. The highest scoring trials will be those of clinical utility such as those corresponding to clinical trials (higher phases scoring higher), interventional treatments, practice guidelines, case studies, consensuses, etc. Lower scoring publications will correspond with observational research only, animal models, cell-lines, etc.

Test Suite Curation

Ranking has been validated through hundreds of test suites. Test suites represent patient cases (gene/variant + condition), and we use them to check and adjust the ranking of trials so that the most relevant come up first.

Tuning the algorithm is a frequent task as we learn new things about trials and get additional oversight from clients and internal curation teams.

Curation is also how we develop our biomedical rules engine for further tuning.

Trial Acquisition and Registry Coverage

In 2008, the World Medical Association's Declaration of Helsinki stated that, "Every clinical trial must be registered in a publicly accessible database before recruitment of the first subject." This spurred many countries to start their own clinical trial registries, or to conform to the standards of other major registries like the US's ClinicalTrials.gov. Many organizations now choose to list their trials in a major registry, their home registry, or both.

At MolecularMatch we bring in all trials and merge them into a consistent format; eliminating duplicates across registries and fill in missing data. We keep this data updated so that we can be sure to contain the majority of registered trials in a format for our algorithms to process, and for our users to distribute information to medical practices around the globe.

Public Registries Incorporated into MM Database

MolecularMatch indexes trials by weekly acquisition from a global collection of registries.

Registry Code	Registry Name	Count
CTGOV	ClinicalTrials.gov	252,112
UMIN	University Hospital Medical Information Network (Japan)	5,179
ANZCTR	Australia/New Zealand Clinical Trials Registry	4,979
ChiCTR	Chinese Clinical Trials Registry	4,031
DRKS	German Clinical Trials Registry	3,165
IRCT	Iranian Registry of Clinical Trials	2,953
EUCTR	European Clinical Trials Registry	1,965
ISRCTN	International Standard Registry of Clinical Trials	1,855
CTRI	Indian Clinical Trials Registry	1,456
NTR	Netherlands Trial Registry	773
CRIS	Clinical Research Information Service (Korea)	476
TCTR	Thai Clinical Trials Registry	422
REBEC	Brazilian Clinical Trials Registry	374
PACTR	Pan African Clinical Trials Registry	174
JapicCTI	Japan Pharmaceutical Information Center - Clinical Trials Information	115
REPEC	Peruvian Clinical Trial Registry	70
JMACCT	Japan Medical Association - Center for Clinical Trials	49
SLCTR	Sri Lanka Clinical Trials Registry	31
RPCEC	Cuban Public Registry of Clinical Trials	8
counts from: 04/10/2018		

Registry Merging

Many trials are listed on *more than one* registry. We handle that by registry priority and secondary identification. For example, if a trial coming in from UMIN has a secondary identifier that is a NCT. No. from ClinicalTrials.gov, the UMIN trial will not make into the final trial table. Instead, a link between the two are created because we already have it from a better source.

Trial Site Geo-Location Enhancements

One of our biggest value additions has been our geo-location and medical group enhancements. Through Google Maps integration, we continuously find the locations of trial sites around the world. We've added millions of addresses for sites that were otherwise not known. This allows features like distance-based and medical group searches; that way you can find trials near you or at a specific institution. Only with MolecularMatch is this advanced level of geo-location available.

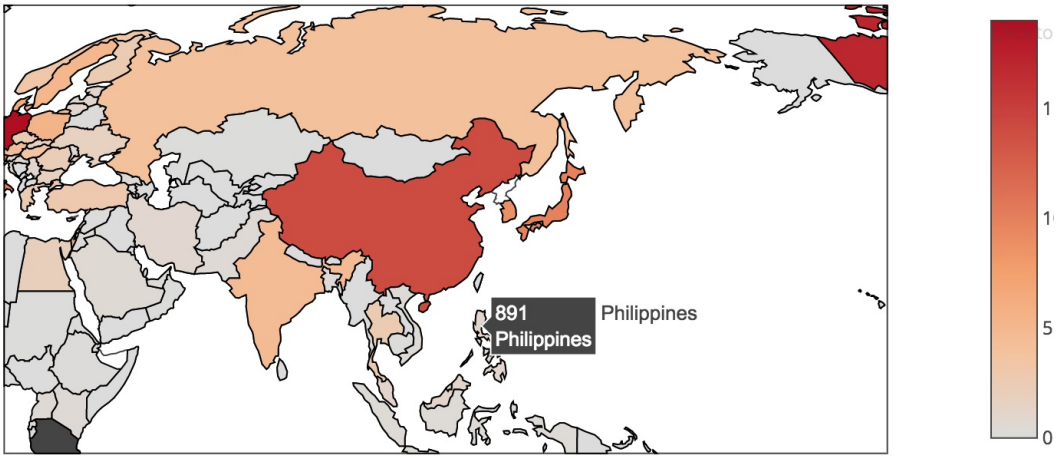
Thousands of hospitals, universities, pharmaceutical / biotechnology companies, contract research organizations, government entities and clinics are represented in the system.

Datasets: World Map of Trials

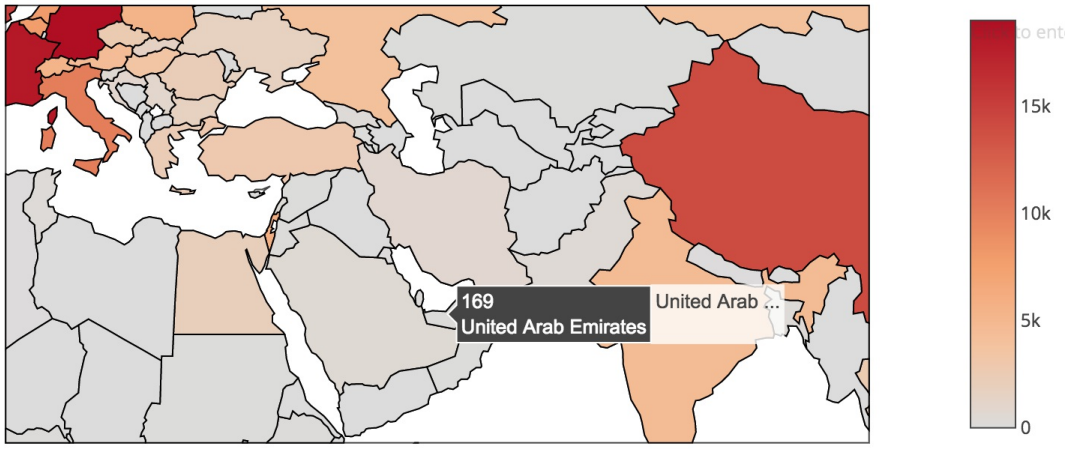
We can easily develop datasets and analytics through our deep understanding of trial data. This data can be used by a variety of industries like medical, financial, research and pharmaceutical groups.

One example would be a country by country breakdown of trial numbers.

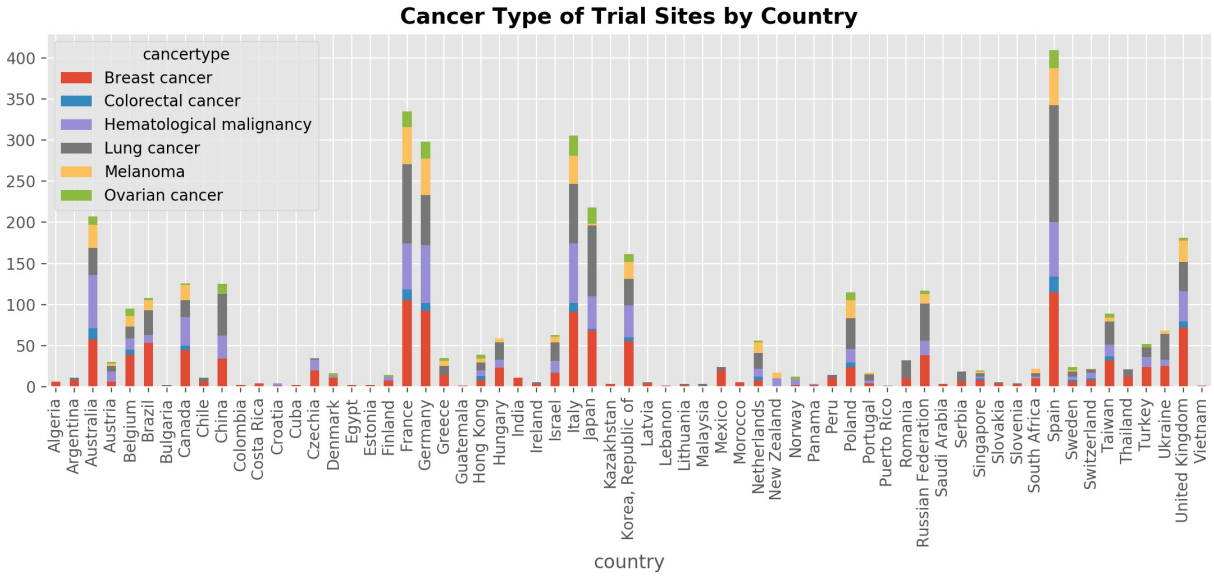
China, Japan, Korea lead Asia

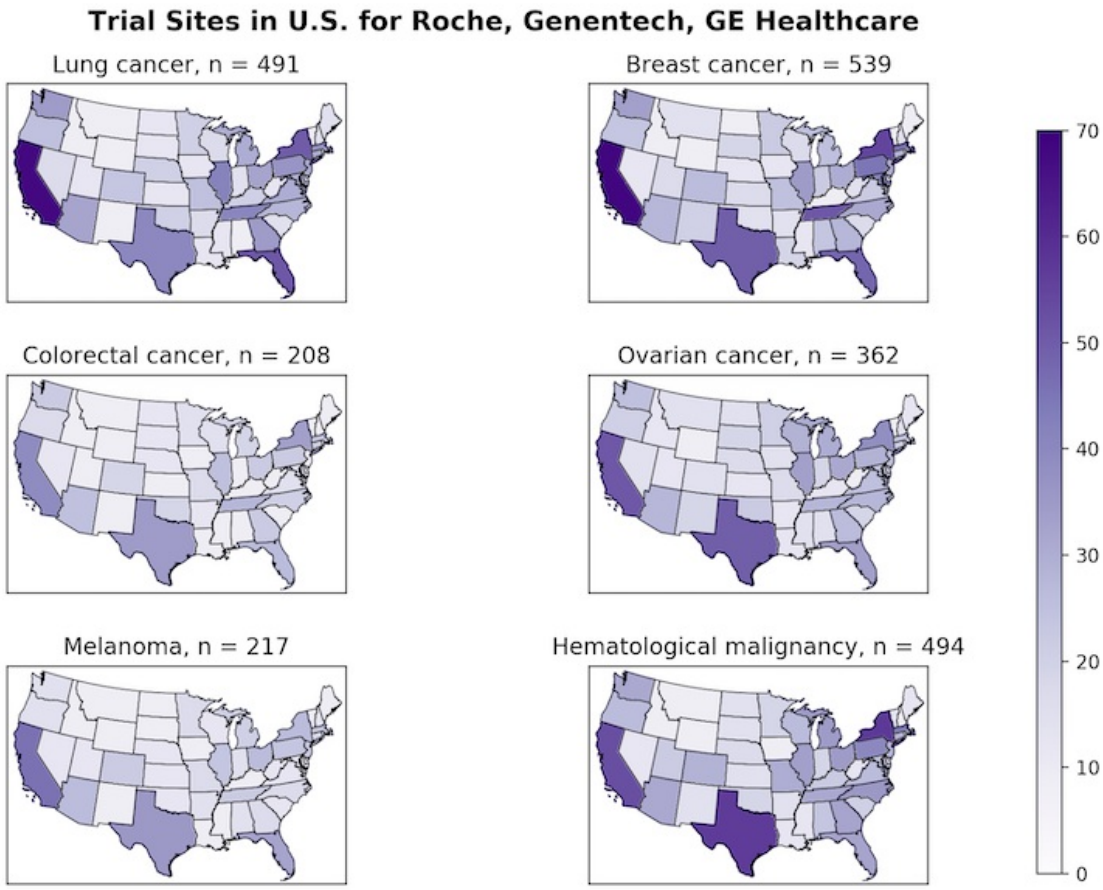


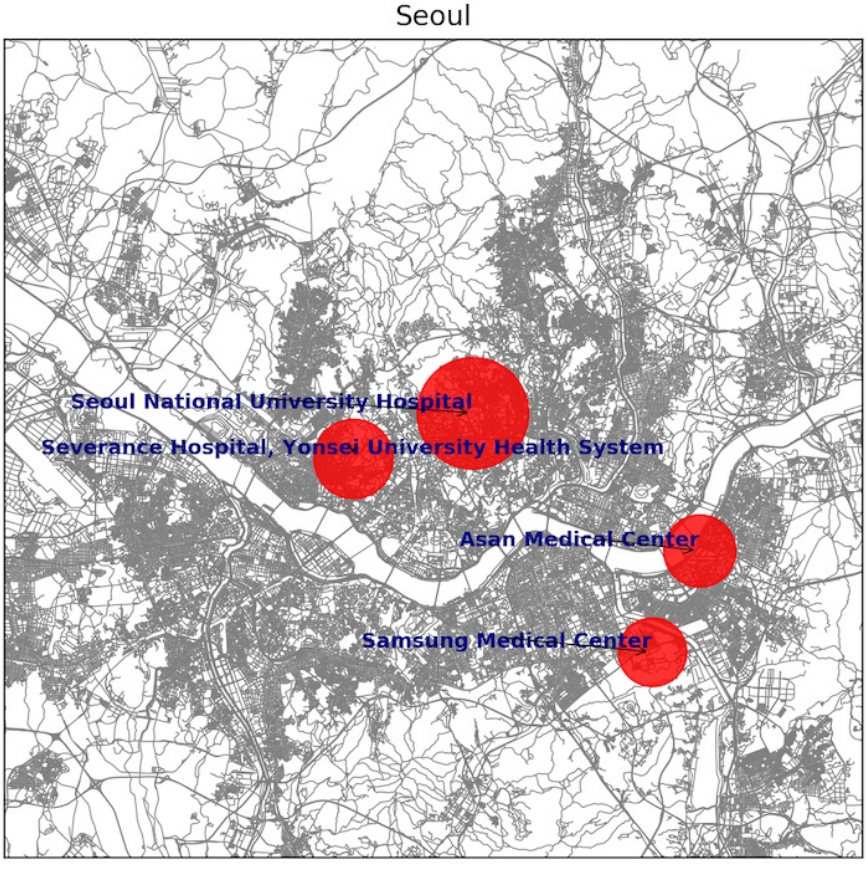
Turkey, Iran, Egypt lead the Middle East / North Africa region



Other Analysis




Trial Sites in U.S. for Roche, Genentech, GE Healthcare
Lung cancer, n = 491
Breast cancer, n = 539
Colorectal cancer, n = 208
Ovarian cancer, n = 362
Melanoma, n = 217
Hematological malignancy, n = 494
70
60
50
40
30
20
10
0


Seoul
Seoul National University Hospital
Severance Hospital, Yonsei University Health System
Asan Medical Center
Samsung Medical Center