

Cortellis Application Programming Interfaces

Cortellis
Powering Life Sciences Innovation

 **Clarivate**
Analytics

Table of Contents

The challenge	2
The solution	2
What can you do with <i>Cortellis</i> APIs?	2
<i>Cortellis</i> APIs	3
Analytics	3
Biomarkers	3
Clinical	4
Company Analytics	4
Drug Design	5
Drug-Drug Interactions	5
Investigational Drugs	6
Ontologies	6
Opportunity Monitor	7
Patents	7
Regulatory	8
Targets	8
Who we are	9

© 2017 Clarivate Analytics

Microsoft, PowerPoint and Excel are registered trademarks of Microsoft Corporation in the United States and other countries.

Spotfire is a registered trademark of TIBCO Software Inc. and/or its subsidiaries in the United States and/or other countries.

QlikView is a registered trademark of QlikTech International AB in multiple countries.

Biovia and Pipeline Pilot are registered trademarks or registered trademarks of Dassault Systèmes or its subsidiaries in the US and/or other countries.

Inova Software is a registered trademark of Inova Software Inc in the United States and other countries.

The challenge

Teams across your organization want fast and simple access to current information in order to make reliable, evidence-based decisions for their research.

With everyone utilizing multiple sources of information as well as a wide variety of applications and systems, efficiently accessing and using information to accelerate projects can be a challenge. Your teams need the right information at the right place and time in order to have a more productive R&D process.

The solution

Integrate key content and information into the tools and processes your teams use every day. With *Cortellis Informatics* Application Programming Interfaces (APIs), you can gather information from market-leading *Clarivate Analytics* life sciences solutions and feed it into the systems that drive your business.

Give your users more advanced options for leveraging our intelligence within your internal applications. The APIs allow integration of *Clarivate* information with your proprietary content and public data sources into a single, comprehensive view so your researchers can find what they are looking for quickly and see it in the context of their work.

Gain the flexibility to decide how and where our information is delivered within your company. Seamless, on-demand access to the most trusted life sciences intelligence on the market via desktop and mobile applications will enhance and accelerate your R&D.

What can you do with *Cortellis* APIs?

APIs retrieve information directly from *Clarivate* databases, enabling many opportunities to integrate information across your organization. This gives your users instant access to the same information across the board, saving time and reducing the risk of wasted or duplicated effort. Leveraging *Cortellis* APIs you can:

- embed high-quality *Clarivate* information into the systems that drive your business
- build and present automatically updated dashboards or infographics
- automatically pull content into TIBCO Spotfire®, Tableau Software and Microsoft Excel® spreadsheets
- generate your own customized reports
- run tailored alerts to monitor hot topics and trends or key changes for your assets
- access on the fly competitive, scientific, clinical, patents and regulatory information
- build mobile applications that leverage *Clarivate* content
- build internal tools for your users to post and internally share comments related to the data from the API
- combine *Clarivate* data with proprietary or third party data in any kind of application (Intranet, Biovia Pipeline Pilot®, Inova Software™, Tableau, TIBCO Spotfire software, ELNs) as well as perform analytics
- Integrate *Clarivate* information into your own database

Cortellis APIs

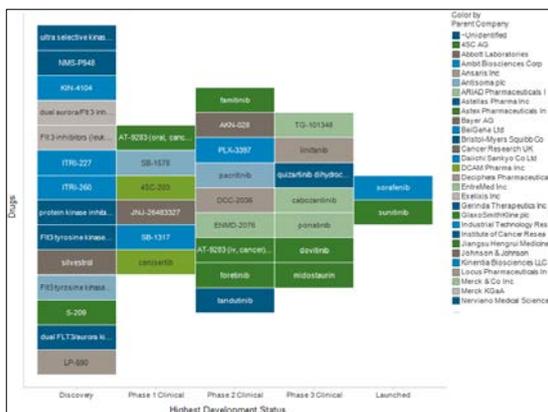
Analytics

Aggregate data to build a competitive landscape for any indication, action or company and display all competing drugs complete with their development histories. You can then visualize your results in analytics tools such as TIBCO Spotfire®, Tableau, or QlikView software.

- Import information into specific analysis tools, allowing precise manipulation of the data to display exactly what is required
- Build visual dashboards, instantly displaying at a glance a candidate’s progression through trials
- Compare aggregated trial adverse events between drugs to evaluate their safety profile

Content includes:

- drug pipeline events
- patent applications
- trial summaries
- adverse events reported in trials



Drug pipeline

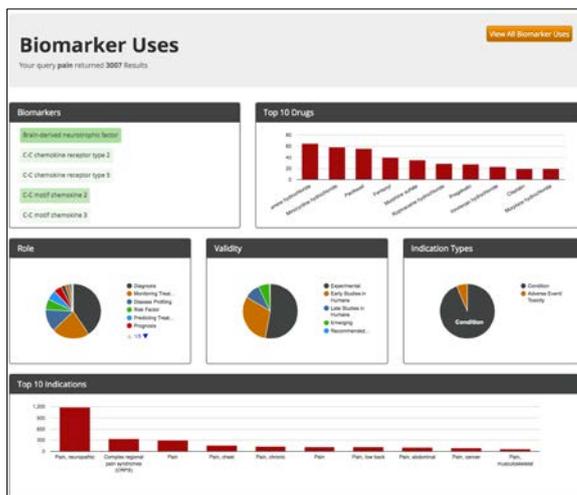
Biomarkers

Find biomarkers and their uses across the full spectrum of drug discovery and development.

- Find validated biomarkers for clinical trials and cross-reference with the Clinical API to identify stratified populations
- Find suitable proof of concept and proof of mechanism biomarkers
- Inform your biomarker discovery programs by accessing the universe of known markers

Content includes:

- biomarker summaries
- individual records for each distinct use, including validity and associated evidence



Biomarker uses

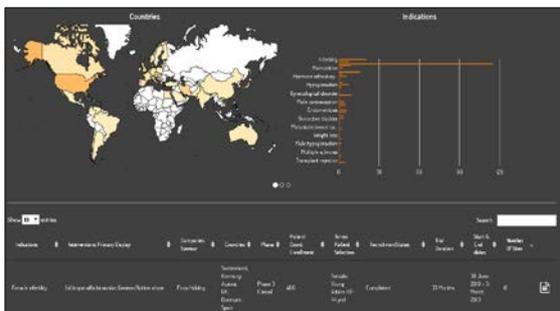
Clinical

Access detailed information for trials across all therapy areas. See relevant clinical trials by biomarker, patient segment, drug, company, or indication, and get breaking news on drug development from press releases and conferences.

- Stay up to date with the latest clinical trials information and get to the data quickly
- Be confident that the results returned reveal the most up-to-date trial outcomes and adverse event information

Content includes:

- summaries of select journal articles from 1964 to date
- clinical trials content comprised from international registry sources
- trial outcomes from journals, conferences, and press releases
- pharmaceutical company press releases and information from major conferences



Clinical trial sites

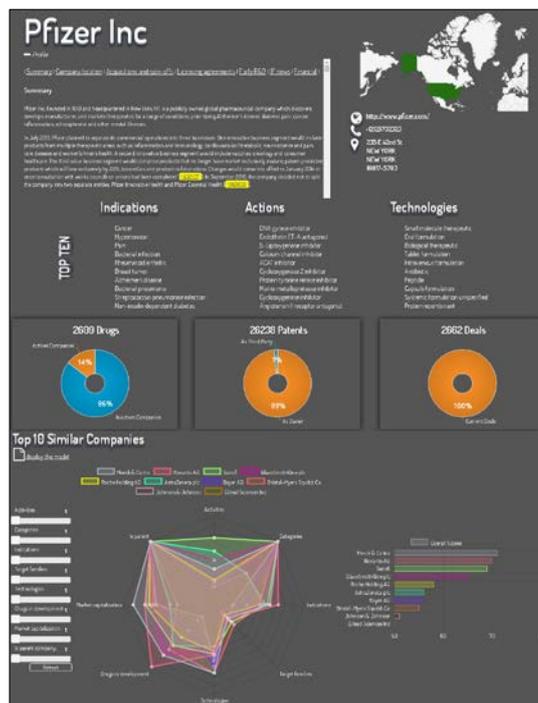
Company Analytics

Use pre-defined functions to get patent expiry, patent activity by therapeutic areas, financials for batches of drugs and to compare companies. Ability to identify similar companies:

- Compare patent, pipeline, financial, and deal information across organizations
- Use key performance indicators to contrast organizations
- Find similar companies by size, market cap, and drug development activity

Content includes:

- company, drug, and deal data from Investigational Drugs API
- patents information from Patents API



Company analytics

Drug Design

Build QSAR analyses from experimental results reported in literature and patents. Compare IC50 and binding affinity for a range of compounds interacting with a target, and find ADME properties for compounds with a given substructure.

Content includes:

- pharmacokinetics/pharmacodynamics experimental results from literature
- experimental pharmacology results from literature and patents
- details of bioactive substances from early patenting to launch

642814		IC50	affinity	Recombinant human receptor	0.000027 M
		IC50	affinity	Recombinant human receptor	0.000074 M
149223		EC50	agonism	HepG2 human hepatoblastoma cells transfected with receptor	4.3E-7 M
633229		EC50	agonism	HepG2 human hepatoblastoma cells transfected with receptor	2.7E-6 M
633233		EC50	agonism	HepG2 human hepatoblastoma cells transfected with receptor	6.5E-6 M
Empressat		IC50	affinity	Human receptor	> 0.00022 M
Ngagen		EC50	agonism	THP1 human acute monocytic leukemia cells	0.000019 M
191_45482		IC50	affinity	Eukaryotic cell transfected with human receptor	2.2E-6 M
Chelone acid		EC50	agonism	HepG2 human hepatoblastoma cells transfected with human receptor	0.00003 M

Drug Design experimental results

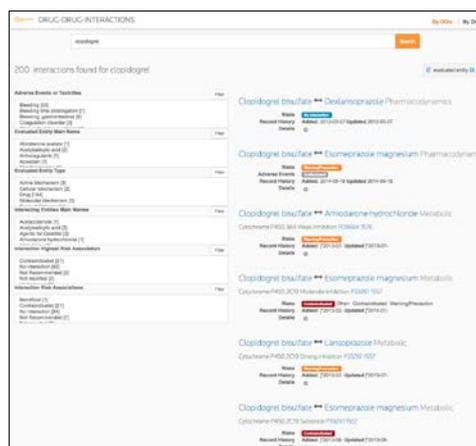
Drug-Drug Interactions

Determine the effect of a drug or a metabolite on another drug's pharmacokinetic or pharmacodynamic profile with manually curated content.

- Understand which drug-drug interactions exist
- Understand a drug's pharmacokinetic exposure and pharmacodynamics interference
- Optimize the ADME profile and effectiveness of drug candidates
- Perform quantitative analysis of interactions between drugs and patients using appropriate models

Content includes:

- records extracted or updated from
 - all FDA labels and EMA EPARs for US- and EU- approved drugs
 - literature (articles from peer review journals, conferences, and meeting abstracts) since 2013
- For each record: at least one interaction study associated with a given reference, model, outcome, potential adverse event(s), and risk



Comparing drug-drug adverse interactions

Investigational Drugs

Build a complete pipeline database with the ability to add your internal data and/or commentary.

- Combine everything known within the organization to ensure confidence that the landscape is as complete as possible
- Display competitive intelligence information (drugs, competitors, phases, technologies, indications, and actions) the way you want it in an easy-to-access format tailored to your specific needs

Content includes:

- monographs for drugs and drug candidates
- profiles of drug-development organizations
- deals details
- backgrounds for key diseases with profiles of key targets and supporting bibliographic references



Drug dashboard

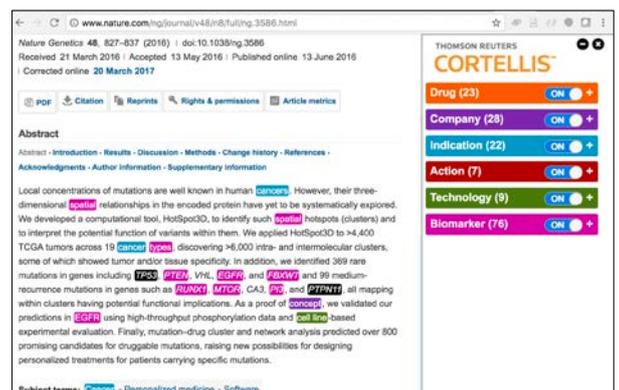
Ontologies

Search and browse *Cortellis* ontologies. Map drug names, diseases, and actions.

- Deploy proven ontologies, saving time and resources in creating your own ontologies
- Access a “dictionary” of *Clarivate* names and synonyms, making it easier and faster to get to the information needed
- Auto-index free text to *Cortellis* ontologies to provide context from other *Cortellis* APIs

Content includes:

- controlled vocabulary terms owned and maintained by *Clarivate*: Actions, Indications, Technologies, Companies, Conditions, Target Classification, Tissues, Processes, Organisms, Fluids, Localizations, Cell Lines, Molecular Functions, Patient Segment, Trial Endpoints, Development Status, Country, Exclusion Criteria, Inclusion Criteria, and Literature
- drug synonyms and mappings
- mappings of *Clarivate* disease identifiers to standard ontologies (MeSH, ICD9/10, MedDRA, and Orphanet) and target identifiers to SwissProt



Ontologies tagging

Opportunity Monitor

Match the in-licensing candidates in your system to *Cortellis* using our custom matching algorithms.

- Generate ad hoc reports on changes by the events you specify from any date to discover what has happened to past review candidates
- Set up and manage email alerts for sets of drug candidates

Content includes:

- drug monographs from the Investigational Drugs API
- drug synonyms from the Ontologies API
- custom table of drug pipeline events

Query Drug	Query Company	Found Drug	Found Company	Rank	Strategy	Matches
doxorubicin	Celison Corp	doxorubicin	Celison Corp	90	Full	doxorubicin (heat-sensitive liposomes, cancer, Celison [43796]) EGEN-001 [56111]
pegarepsp	Oncolytics Biotech Inc	pegarepsp	Oncolytics Biotech Inc	100	Full	Reovirin [24005]
affibercept	Regeneron Pharmaceuticals Inc	affibercept	Regeneron Pharmaceuticals Inc	50	Full	affibercept (intravitreal, AMD), Regeneron/Bayer [33447] affibercept (intravenous, cancer), Regeneron/Sanofi [59693] affibercept (sustained release, wet AMD) Ocular Therapeutics/Regeneron Pharmaceuticals [103795]
belinostat	TopoTarget UK Ltd	belinostat	TopoTarget UK Ltd	100	Full	belinostat (iv, cancer), Onco/Spectrum [8159]
celecocixb	GD Searle	celecocixb		31	DrugOnly	celecocixb [12133] valdecoxib [17805] COX-2 Inhibitors, Pharmacia [8695]

Monitor assets

Patents

View the competitive patent landscape around a particular drug, disease, inventor, or mechanism of action, or provide tailored patent alerting to workgroups.

- Find out the latest patent news for a given disease to guide research goals
- Find out which companies are active in a particular therapeutic area or technology

Content includes:

- patent families
- indexing to controlled vocabularies
- classification by patent type and therapy area
- manually curated titles and fielded abstracts, summarizing the invention
- selected chemical structures
- bibliographic information, including IPCs, filing dates, and inventors



Patent family results

Regulatory

Access regulatory reference documents, view summaries of procedures and reports, or build comparisons of regulations and drug approval documents from across the world.

- Fetch the most up-to-date regulatory documents and guidelines into your internal system
- Build a timeline of the development of a particular regulation
- Show a map view of relevant regulatory information

Content includes:

- current and historical regulatory reference documents, including legislation, guidelines, and approval packages
- regulatory summaries, including submission routes and local regulatory practice
- regulatory intelligence reports for tracking changes and preparing for inspections
- global regulatory comparisons of requirements and procedures across regulatory authorities



Regulatory search

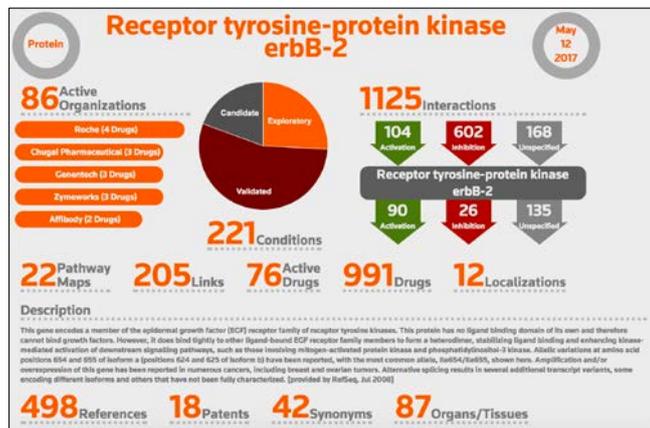
Targets

Build a “Targetpedia” with all information about a target and the drugs active on it.

- Combine proprietary data to build a comprehensive resource giving more confidence that everything known in the organization is displayed
- Stay up to date with all the latest drug targets’ information to facilitate better and faster business-critical decisions

Content includes:

- information on targets from patents, journals, meetings, trial registries, websites, regulatory bodies, and public databanks
- details including chemical structures of compounds known to interact with the target
- associated drugs with phase of development for each condition
- associated variant and biomarker information



Target dashboard

Who we are

Clarivate Analytics accelerates the pace of innovation by providing trusted insights and analytics to customers around the world, enabling them to discover, protect and commercialize new ideas faster. We own and operate a collection of leading subscription-based services focused on scientific and academic research, patent analytics and regulatory standards, pharmaceutical and biotech intelligence, trademark protection, domain brand protection and intellectual property management. *Clarivate Analytics* is now an independent company with over 4,000 employees, operating in more than 100 countries and owns well-known brands that include *Web of Science*, *Cortellis*, *Derwent*, *CompuMark*, *MarkMonitor* and *Techstreet*, among others.

To learn more, visit:

clarivate.com/cortellis-informatics

North America

Philadelphia: 1 800 336 4474
1 215 386 0100

Latin America

Brazil: 55 11 8370 9845
Other countries: 1 215 823 5674

08.2017
© 2017 Clarivate Analytics

Europe, Middle East and Africa

London: 44 20 7433 4000

Asia Pacific

Singapore: 65 6775 5088
Tokyo: 81 3 5218 6500

clarivate.com