

# New Ways of Working The Era of Cognitive Computing

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Leaders, advocates,  
and influencers in health  
make powerful progress  
towards a healthier future



But, in an industry riddled with complexity, professionals face significant headwinds

A close-up, high-contrast portrait of a man's face. He is wearing black-rimmed glasses and has a full, dark beard and mustache. His eyes are light-colored and looking directly at the camera. The lighting is dramatic, with one side of his face in shadow. The background is dark and indistinct.

Empowering heroes,  
transforming health

Empowering heroes,  
transforming health



Empowering heroes,  
transforming health



Shared passion to effect  
meaningful change



# Data is transforming every industry

165 Zettabytes by 2025\*

We are here

165 ZB

Sensors & Devices

Medical Images

Multimedia

Natural Language

Enterprise

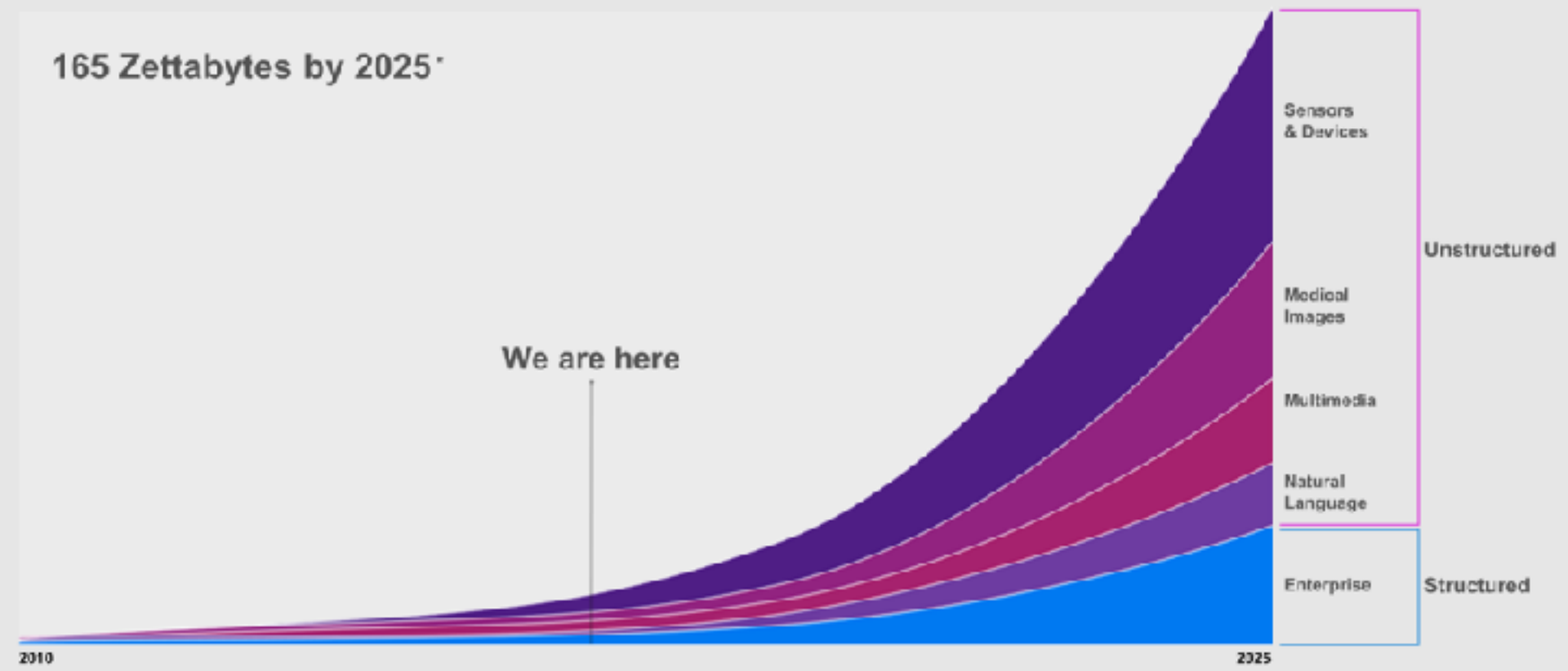
Unstructured

Structured

2010

2025

\*Source IDC. IBM projections based on analyst report





# Data Driven Knowledge Discovery Pipeline

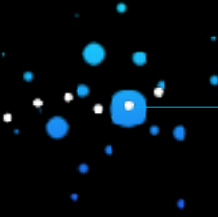
Gather Data

Connect

Reason

Knowledge

Adapt



Analytics



Cognitive



Learn

## Our mission

We, Watson Health, aspire to improve lives and give hope by delivering innovation to address the world's most pressing health challenges through data and cognitive insights.



To do so, we've created  
a connected ecosystem  
across the health  
landscape, powered by  
intelligent tools, and  
industry-leading  
partnerships



Oncology & Genomics

Imaging

Life Sciences

Value-Based Care

Government

Consumer



HEALTHCARE & LIFE SCIENCES

# Oncology & Genomics

Working to help our clients  
transform cancer care for patients  
and providers

illumina®



Hangzhou Cognitive  
Care



**Preparation for Doctor's  
first consultation with patient**



**IBM Watson Health**



# IBM Watson Oncology

Built with Memorial Sloan Kettering

Reminder: You have access to this early evaluation version of IBM Watson Oncology for testing purposes only. This is not ready for human clinical use and you may only share feedback on your experience with IBM and MSKCC.

We are tracking known limitations, including accuracy and usability issues, of this version and strongly encourage you to review that document (available on the IBM Watson Oncology Early Evaluation Program site) as it is continually updated.

In this beta, you will be provided with sample cases to test the usability of Watson Oncology. You will also have the opportunity to create new sample cases or make changes to existing sample cases. This is for testing purposes only and is not ready for human clinical use. Do not provide any real patient information or protected health information (PHI) when you create or modify any sample cases.

Watson Oncology, created with Memorial Sloan Kettering Cancer Center, assists an oncologist in making treatment decisions by providing access to clinical care guidelines, medical literature and textbooks, medical compendia, and other similar data sources. Watson Oncology will use this information to identify potential treatment options. These options are suggestions only and do not replace an oncologist's expert judgment. Watson Oncology should only be used to assist licensed professionals in their area of training and expertise.

This research version of Watson Oncology is being studied for its utility in assisting clinicians in making treatment decisions by providing access to clinical care guidelines, medical literature and textbooks, medical compendia, and other similar data sources. **Watson Oncology IS NOT READY FOR HUMAN CLINICAL USE. DO NOT USE WATSON IN CONNECTION WITH MAKING YOUR TREATMENT DECISIONS. FOR RESEARCH USE ONLY.**

Watson Oncology, taught by physician experts at Memorial Sloan Kettering Cancer Center.



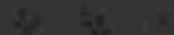
Memorial Sloan Kettering  
Cancer Center



Close (X)

Sort by

10 | 25 | 50 | All



## Patient Cases for Beta

Q: Test

Total: 43

### Stage IIB neoadjuvant with Case Note

Diagnosis: Breast Cancer, Gender: F, Age: 67, F  
Last Updated: 10/20/2014 11:01:23 AM

### Stage IIB neoadjuvant with Case Note

Diagnosis: Breast Cancer, Gender: F, Age: 62, F  
Last Updated: 10/20/2014 11:25:09 AM

### [sample] 67 y/o Female with Stage IIB

Diagnosis: Breast Cancer, Gender: F, Age: 67, F  
Last Updated: 9/20/2014 5:43:42 PM

### Stage IIB neoadjuvant with Case Note

Diagnosis: Breast Cancer, Gender: F, Age: 62, F  
Last Updated: 9/29/2014 8:44:42 PM

### HR- HER2+ slp lumpectomy

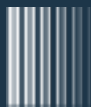
Diagnosis: Breast Cancer, Gender: F, Age: 29, F  
Last Updated: 8/20/2014 4:07:55 PM

### [sample] Ejection Fraction

Diagnosis: Breast Cancer, Gender: F, Age: 67, Patient ID: Example 1112317c-02b-481d-8345-d1c0a3dfe0e8  
Last Updated: 10/20/2014 11:01:23 AM

# Imaging

Working to help our clients expand the role of medical imaging for better patient care

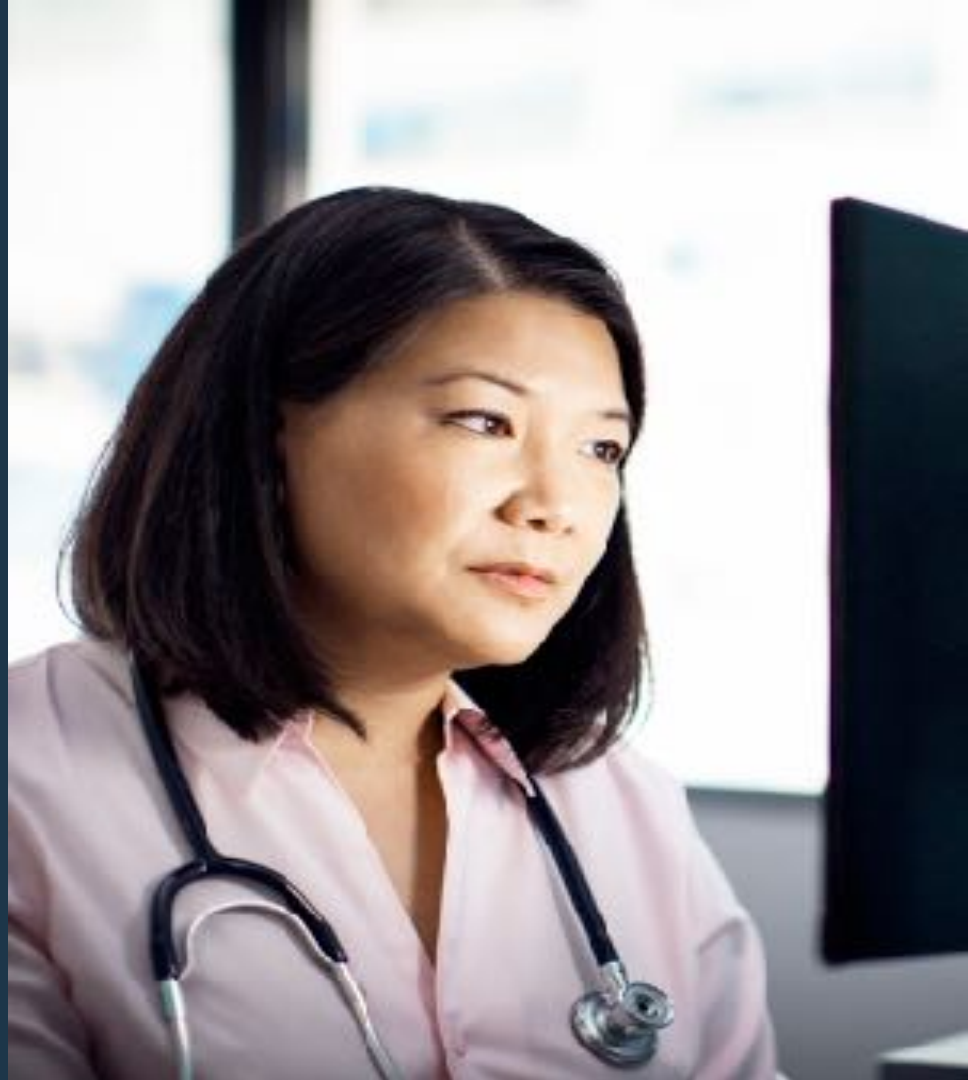


**HOLOGIC**  
The Future of Data

UC San Diego Health

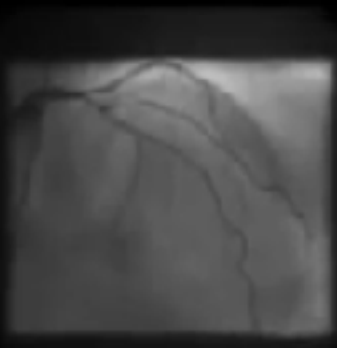


**SENTARA**  
HEALTHCARE

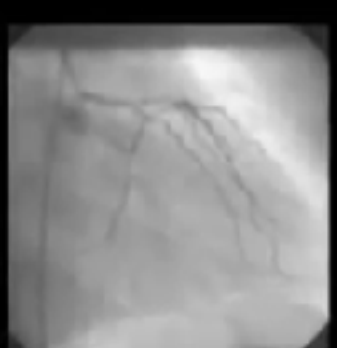




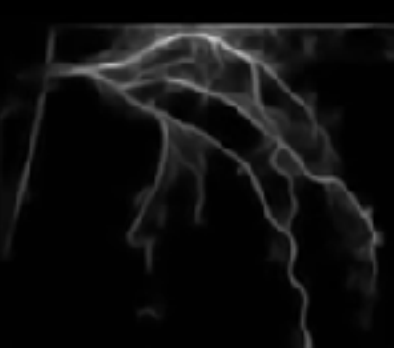
# Anomaly detection involves complex analytics



Raw image



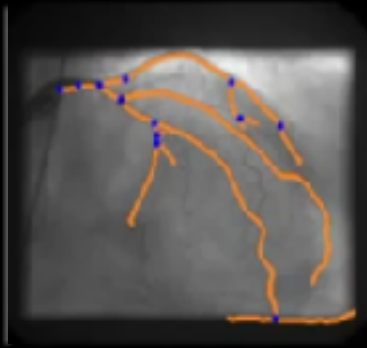
Reference



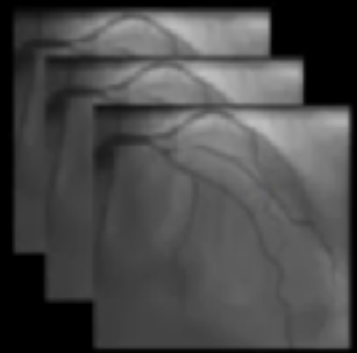
Highlighted anatomy



Segmented arteries



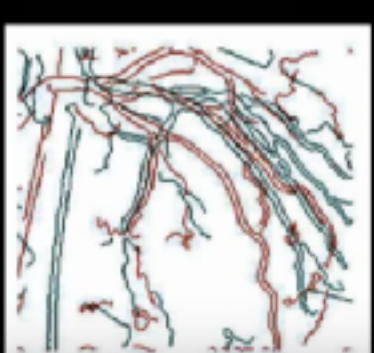
Arterial features



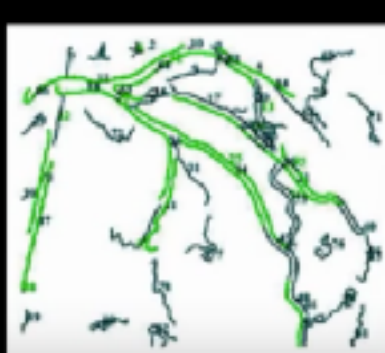
Learn from databases



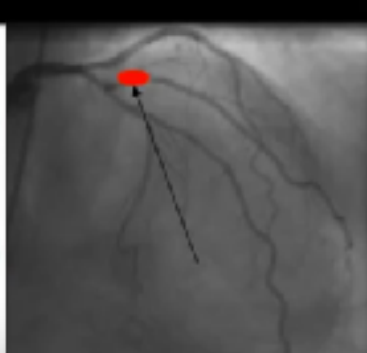
Annotated reference



Before registration



After registration



Anomaly (stenosis)

Overview

Clinical

Historia

Reasoning

Reports

Labs

Imaging

Medications

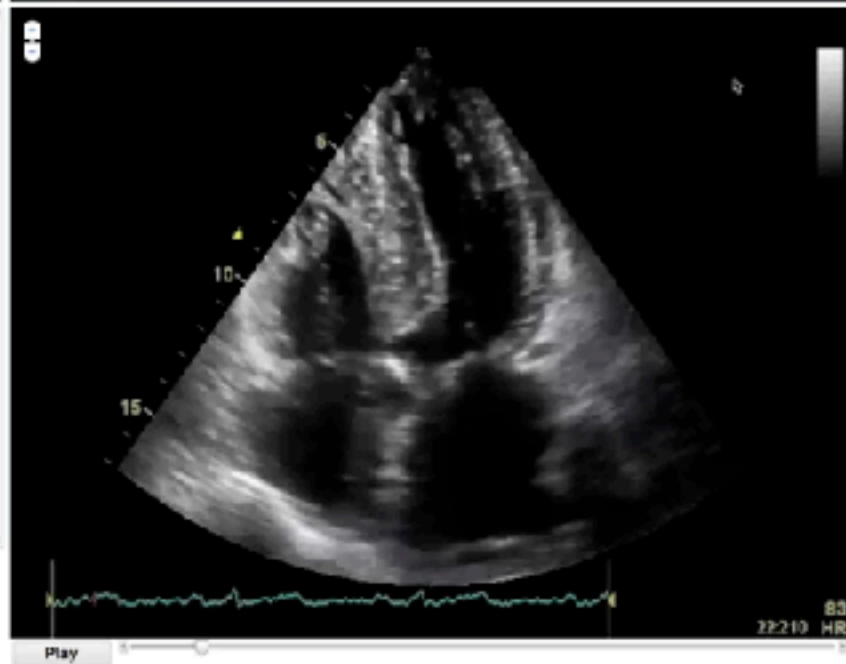
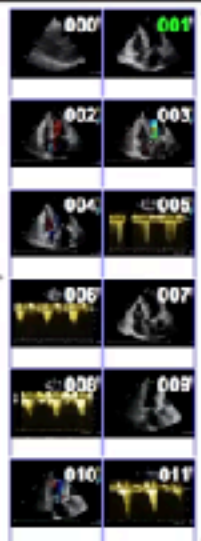
Similar

Ultrasound of the heart

Video

Frame 0007

Features: original



Overview

Clinical

Historical

Reasoning

Reports

Labs

Imaging

Medications

Similar

Angiography study

Video

Frame 00003

Features: original



Play

## Life Sciences

Working to help our clients advance more rapid and efficient delivery of targeted and effective therapies





## Finding Innovative Cancer Cures with Genomic Medicine

**800 billion**

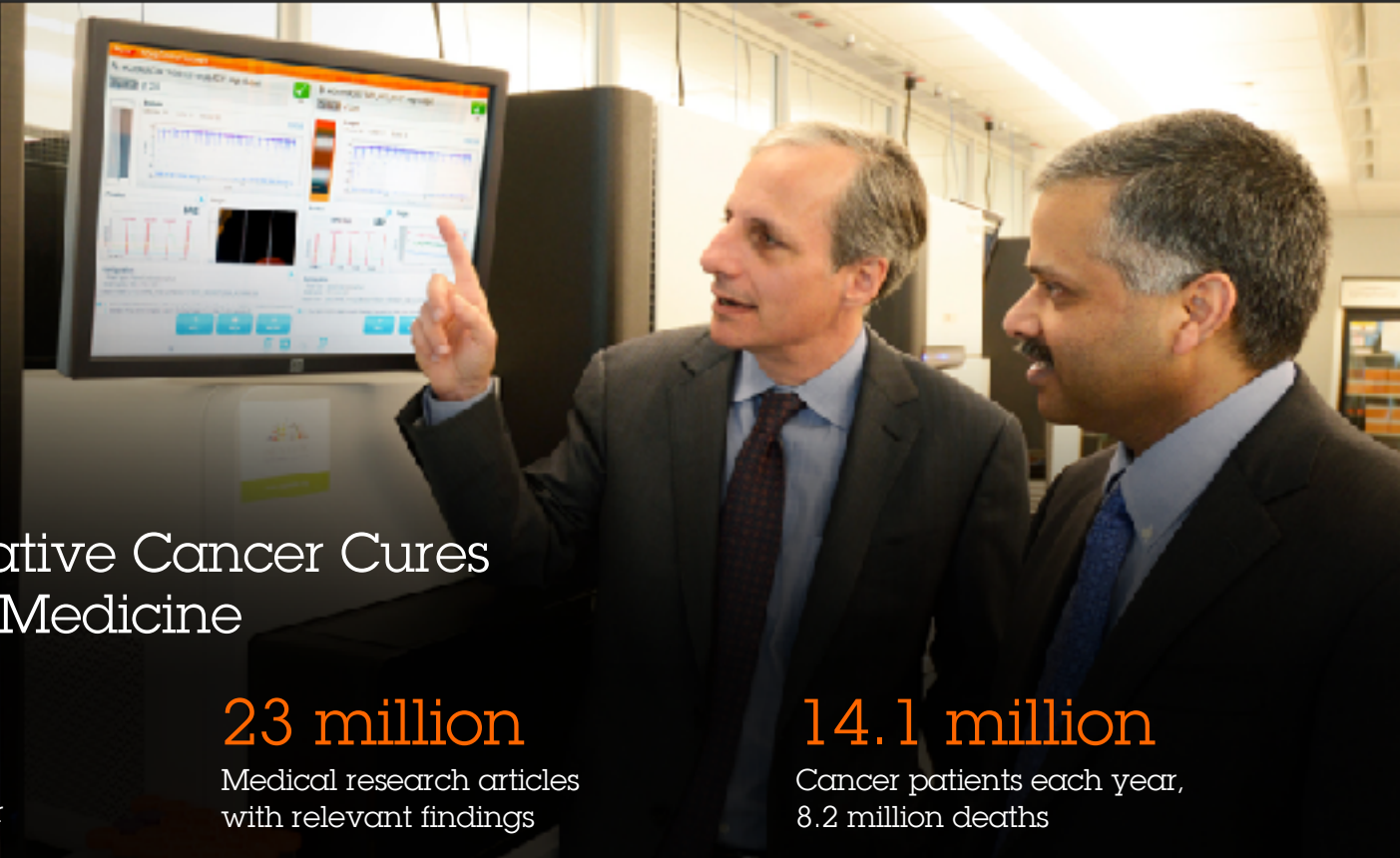
Base pairs of DNA  
to analyze one brain tumor

**23 million**

Medical research articles  
with relevant findings

**14.1 million**

Cancer patients each year,  
8.2 million deaths



# Cognitive Systems Era

[Knowledge Report](#) | [Workflow Report](#) | [Pathway](#) | **[Drug Oriented Pathway](#)** | [Full Report](#) | [Error Report](#)

[Home](#) | [Add to report](#) | [Export](#) | [Next](#)

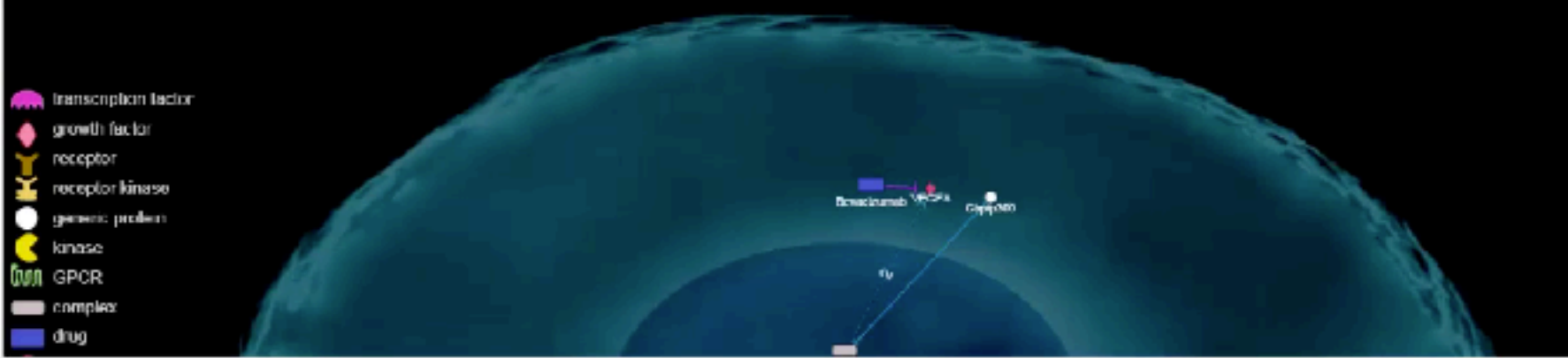
• Select a drug to visualize

Classification	Drug	Target	Drug Code	Status
Other cancers	Tamoxifen	-	-	approved
	<b>Bevacizumab</b>	VEGFA	CP000	approved
Other diseases	Clonidine	TC4V	CP000	investigational
	BB-1171	-	-	investigational
	IL13-IL13R2p	-	-	investigational

**Drug Information**

**Name:** Bevacizumab  
**DrugBank ID:** DB00112  
**Aliases:** anti-VEGF, Avastin  
**Trade Name:** Avastin  
**Known Targets:** VEGFA  
**Conditions:** Head Cell Carcinoma, Colorectal Carcinoma, Lung Carcinoma, Glioblastoma  
**Mechanism of action:** Bevacizumab binds VEGF and prevents its interaction with VEGF receptors (VEGFR1 and VEGFR2) on the surface of endothelial cells. This causes endothelial cell death.

Pathways: AP-1 transcription factor network, Internalization of ErbB1, S1P1 pathway



## Value-Based Care

Working to help our clients manage cost and address quality by managing risk and populations, engaging with consumers, and making more confident decisions

SIEMENS  
Healthineers

Medtronic

Welltok.



Remarkable  
Outcomes

Accelerated  
Discovery

Essential  
Connections

Heightened  
Confidence





# Remarkable Outcomes

Leverage innovative capabilities in analytics, workflows and insights to drive better health economics and productivity, so they can more quickly and effectively advance towards life-changing results





## Accelerated Discovery

Quickly identify the optimal path forward by utilizing advanced tools and intuitive solutions that expedite problem solving



Seven times  
more anti-  
cancer genes in  
one month

... as traditionally done  
in one year

Baylor  
College of  
Medicine

**Knowledge of data**

More than 70,000 research  
papers to identify new  
relationships

**Extending EXPERTISE**

Within a few months 7X  
more potential anti-cancer  
genes were identified vs  
one year.

**Learning and improving**

Watson shows relationships -  
and new verifiable  
hypotheses

# Heightened Confidence

Decide and take action with increased certainty by uncovering unique sets of robust and actionable insights





# Human + Machine


Self-directed goals Large-scale math

Common sense Pattern discovery

Value judgement Statistical reasoning

Rethink what's possible.





**Minute by minute.  
Insight by insight.  
Decision by decision.  
Together.**

