

The Cancer Genome Atlas: 2015 Update

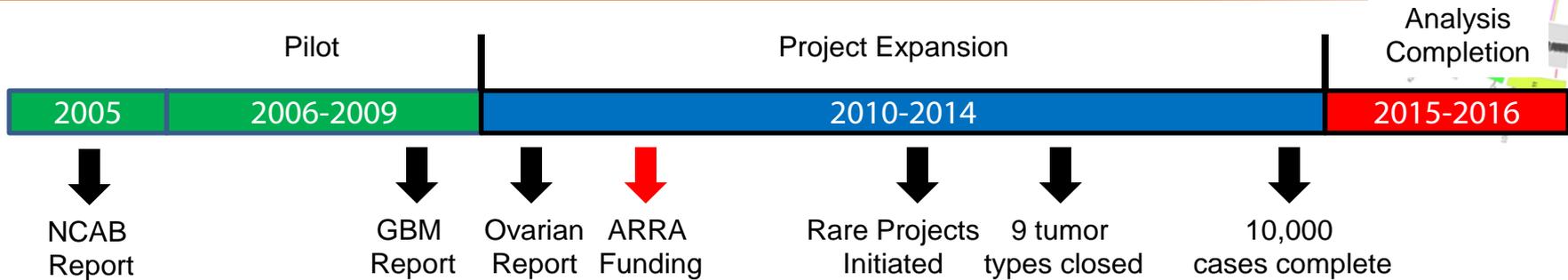
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TCGA: Timeline



□ **Pilot Projects: GBM and Ovarian carcinoma (~500 cases ea.)**

- Establish infrastructure for effective team science
- Develop a scalable “pipeline”
- Demonstrate the feasibility of a large-scale, high throughput approach to identifying the molecular ‘parts-list’
- Make the data publicly and broadly available to the cancer community while protecting patient privacy

□ **Expansion 2010 to 2014:**

- Add 25-35 tumor types
- Enhancement of sample acquisition & program staff
- Add Genome Data Analysis Centers
- Publish “Benchmark Marker Papers”
- Established FFPE protocols
- Completely characterize 10,000th case

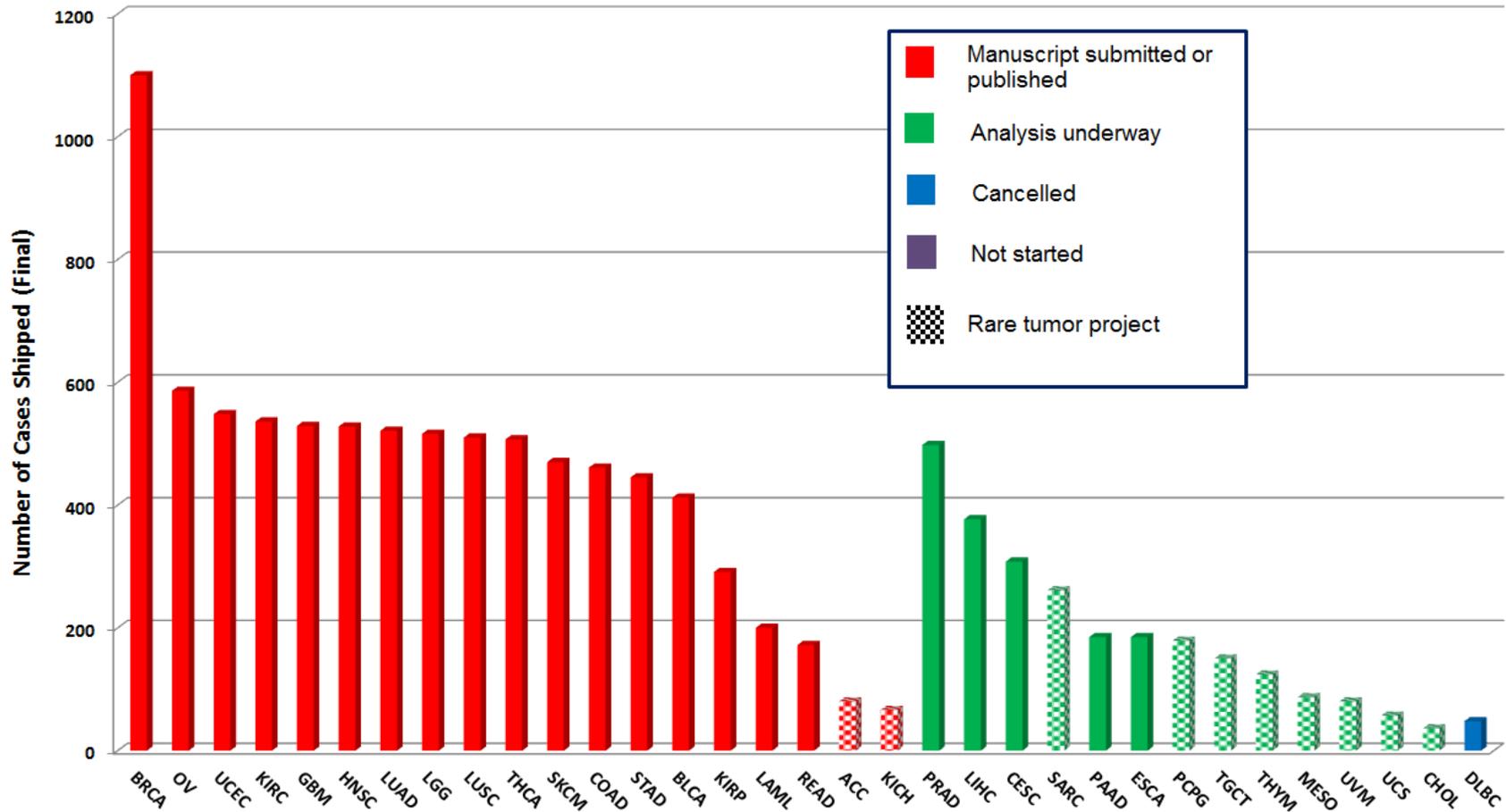
□ **Analysis Completion 2015-2016:**

- Finish marker papers on rare & “challenging-to-accrue” tumors
- Complete Pan-Cancer Analysis
- Broader sharing of tools, analytical methods

Tumor Project Progress



TCGA Tumor Project Progress as of April 2015



TCGA: Data Availability



- 12,550 cases qualified across 33 tumor types
- 2395 cases received at the BCR on 12/2013, 1/8 of total cases received
- 10,849 with minimum clinical data set
- 8404 with at least 1 year follow-up (73941 year/879 2 years/108 3 years/19 4years/3 5years/ 1 6years); ~50% with treatment data
- 155,368 samples of RNA/DNA/protein shipped between 2006 & 03/2015 (146,950 DNA +RNA; 8418 tissue for protein)
- All but 9429 samples have data returned:
 - >99.8% of all samples and >94% of cases have Level 1 data publicly available

Data Analysis Groups



- Ongoing Analysis Work Groups (AWGs)
 - Prostate Adenocarcinoma
 - Stomach & Esophageal
 - Kidney Papillary Carcinoma
 - Uterine Carcinosarcoma
 - Cervical Carcinoma
 - Liver Carcinoma
 - Pancreatic Adenocarcinoma
 - Adrenocortical Carcinoma
 - Pheochromocytoma/Paraganglioma
 - Uveal Melanoma
 - Cholangiocarcinoma
 - Testicular Germcell Carcinoma
 - Thymoma
 - Sarcoma (7 Subtypes)
 - LGG + GBM
 - Breast Lobular Carcinoma

Publications



- Bladder
- Lung Adenocarcinoma
- Pan Cancer Analysis
- Stomach
- Kidney Chromophobe
- Thyroid Papillary
- Head and Neck
- Skin Melanoma
- Low Grade Glioma
- Adenocortical Carcinoma
- Published Nature on 01/29/2014
- Published Nature on 07/31/ 2014
- Published Nature on 08/14/2014
- Published Nature on 09/11/2014
- Published Cancer Cell on 09/08/2014
- Published Cell 10/23/2014
- Published Nature on 01/29/2014
- Accepted Cell 2/2015
- Accepted NEJM 3/2015
- Submitted to Nature Genetics

Future Programs



- There will be no TCGA 2.0
- A variety of new programs have started or are about to start (ALCHEMIST, Exceptional Responders, CDDP, CTSP) that center on discovering the reasons why some patients respond better than others to therapy and learn more about the molecular underpinnings on the way.
- The big message is cancer genomics is here to stay, but in the context of helping decipher how to better treat the patient.