2024-07-15

Ontario Institute for Cancer Research

Djerba: Sharing and Updating a Modular System for Clinical Report Generation

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OICR
Ontario Institute for Cancer Research

Djerba

ISMB 2024 · JULY 12-16
ISCB MONTREAL CANADA

Clinical reporting for cancer

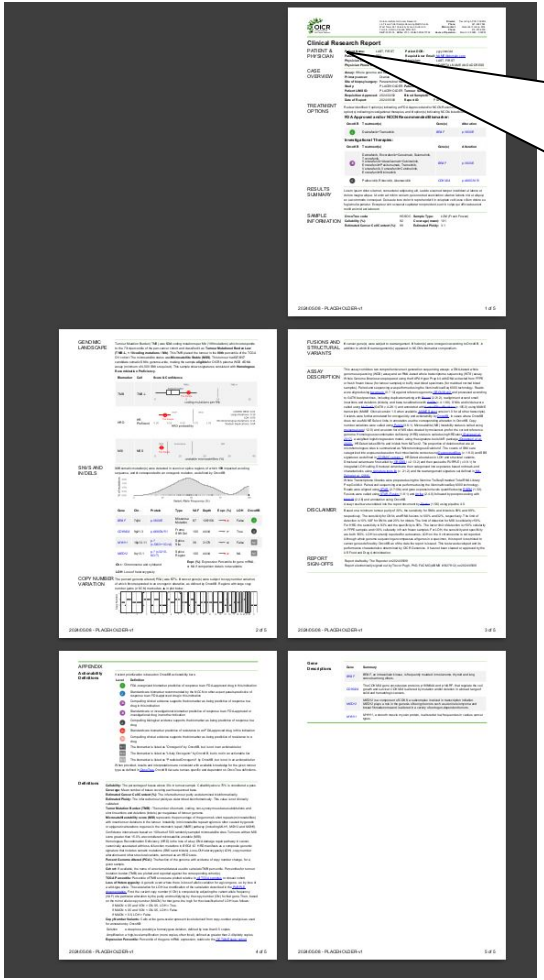
Genome sequencing

47 clinical workflows

Variant detection

Djerba

Clinical report



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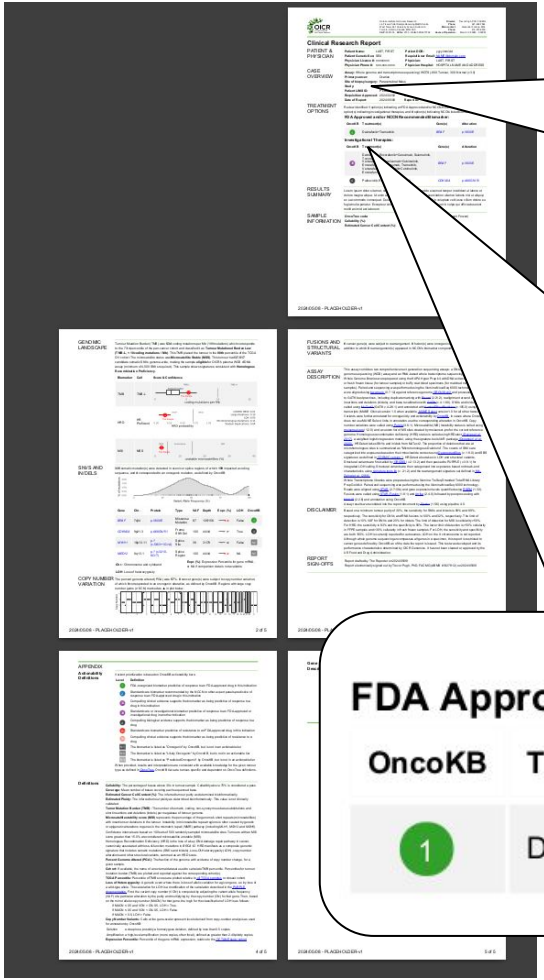
c/o Tissue Portal Sample Receiving MaRS Centre
West Tower 661 University Avenue, Suite 6-46
Toronto, Ontario, Canada, M5G 0A3
CAP: 8381376 **ACDx:** 0730 **CLIA:** 99D2270792

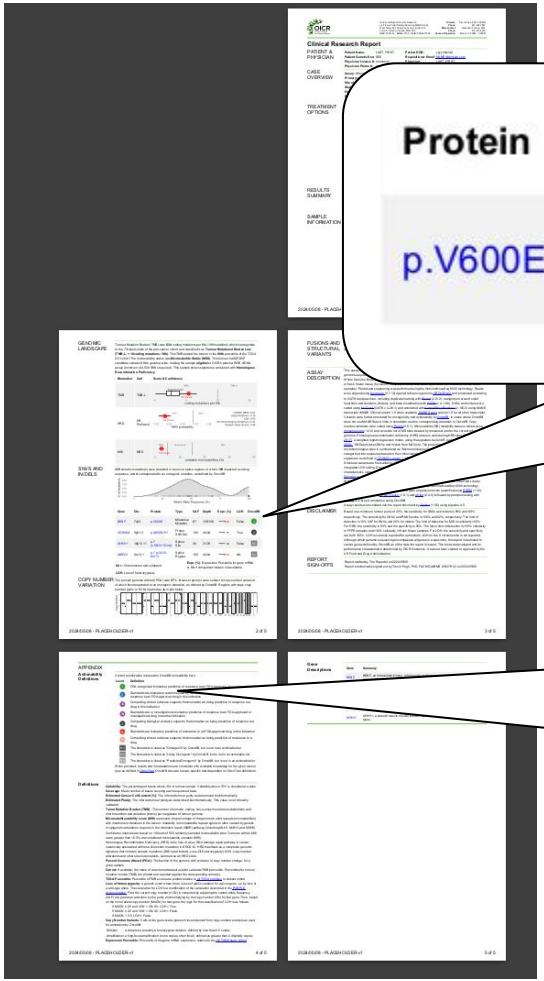
Clinical Research Report



Primary cancer:	Ovarian		
Site of biopsy/surgery:	Paravertebral Mass		
Study:	PLACEHOLDER	**Patient Study ID:**	None
Patient LIMS ID:	PLACEHOLDER	**Tumour Sample ID:**	PLACEHOLDER
Requisition Approved:	2024/02/02	**Blood Sample ID:**	PLACEHOLDER
Date of Report:	2024/05/08	**Report ID:**	PLACEHOLDER-v1

FDA Approved and/or NCCN Recommended Biomarker:

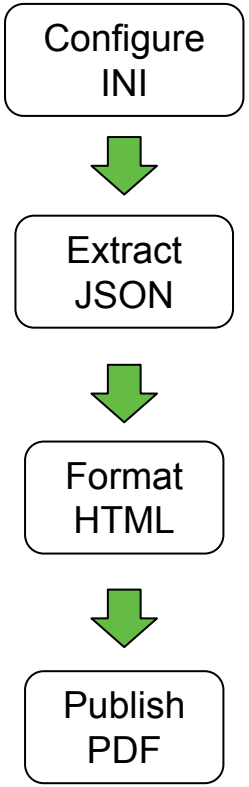
OncoKB	Treatment(s)	Gene(s)	Alteration
1	Dabrafenib+Trametinib	*BRAF*	p.V600E



Protein	Type	VAF	Depth	Expr. (%)	LOH	OncoKB
p.V600E	Missense Mutation	67	105/156	98	False	1

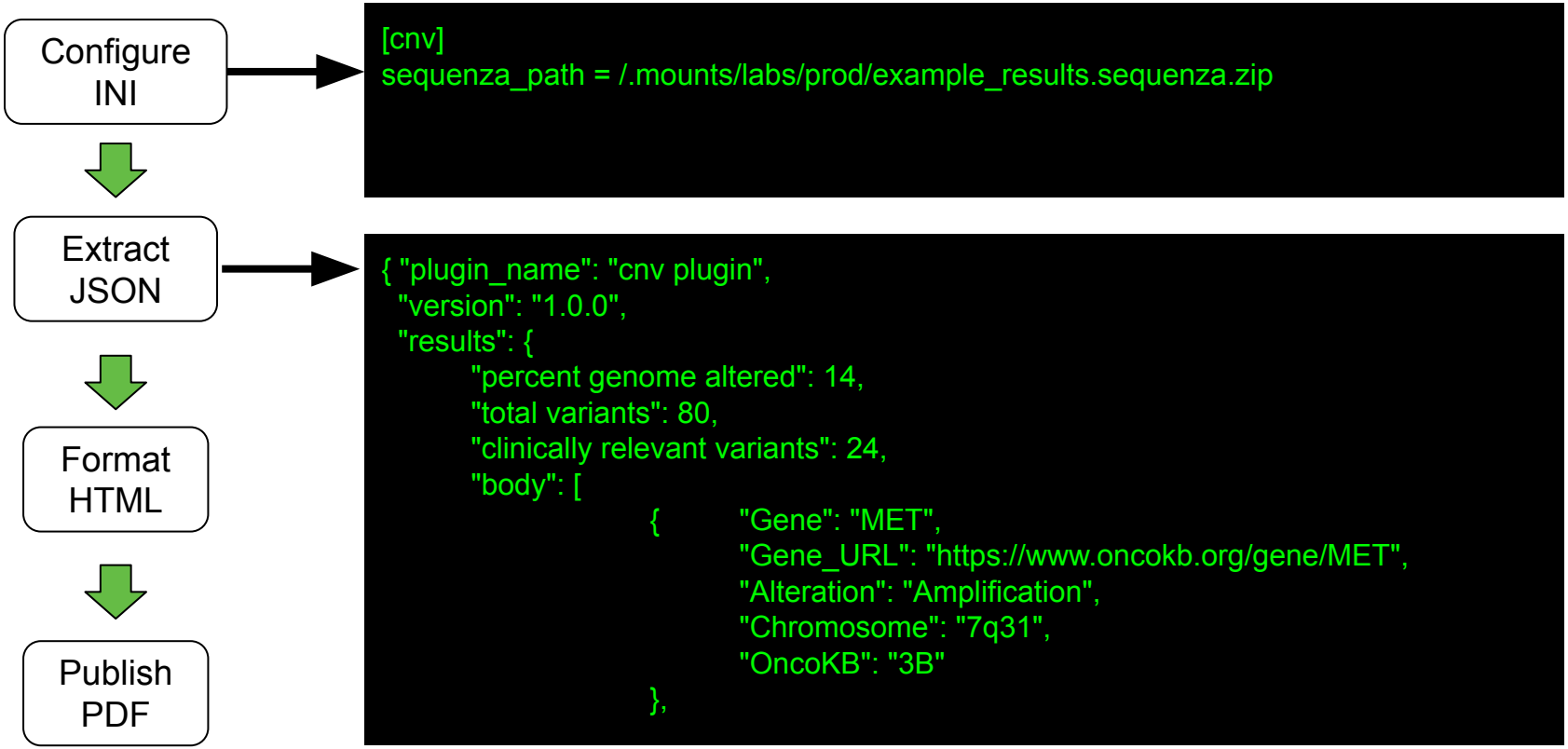
Level	Definition
1	FDA-recognized biomarker predictive of response

Djerba: Clinical reporting with plugins



Djerba: Clinical reporting with plugins

Djerba: Clinical reporting with plugins



Djerba: Clinical reporting with a new plugin!

Djerba: The First Assay

Whole Genome & Transcriptome

15 plugins

core
report_title
patient_info
supplement.body
input_params_helper
provenance_helper
wgts.cnv_purple
case_overview
treatment_options_merger
summary
sample
wgts.snv_indel
fusion
expression_helper
gene_information_merger

Djerba: Reporting A New Assay

Whole Genome & Transcriptome

15 plugins

core
report_title
patient_info
supplement.body
input_params_helper
provenance_helper
wgts.cnv_purple
case_overview
treatment_options_merger
summary
sample
wgts.snv_indel
fusion
expression_helper
gene_information_merger

Plasma Whole Genome

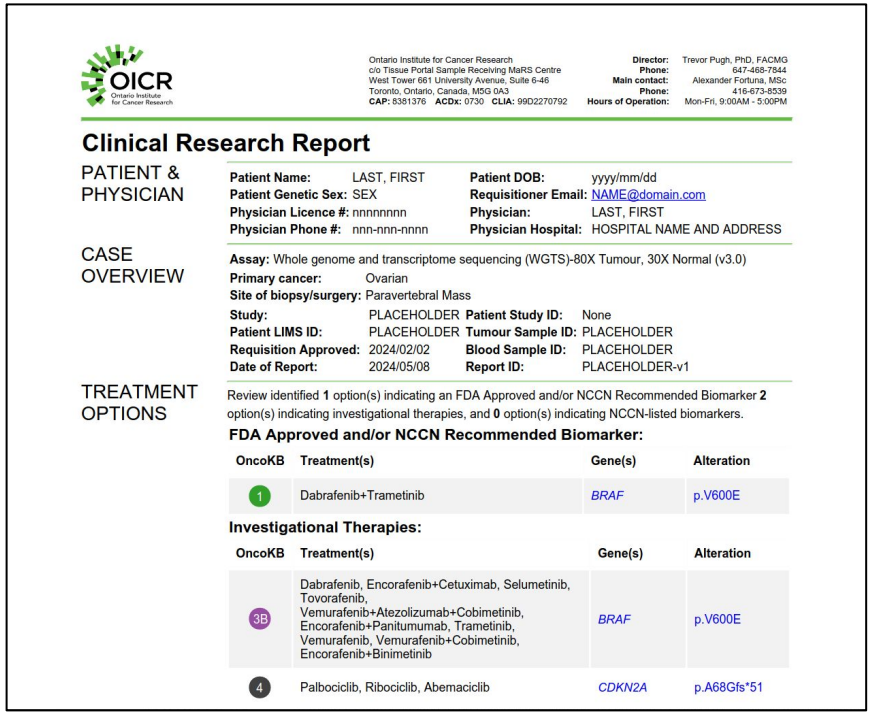
NEW!

10 plugins

core
report_title
patient_info
supplement.body
pwgs_provenance_helper
pwgs_cardea_helper
pwgs.case_overview
pwgs.summary
pwgs.sample
pwgs.analysis

Shared plugins for faster development!

Whole Genome & Transcriptome



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Phone: 647-468-7844
Main contact: Alexander Fortuna, MSc
Phone: 416-673-8539
Hours of Operation: Mon-Fri, 9:00AM - 5:00PM

Clinical Research Report

PATIENT & PHYSICIAN

Patient Name: LAST, FIRST
Patient Genetic Sex: SEX
Physician Licence #: nnnnnnnn
Physician Phone #: nnn-nnn-nnnn
Patient DOB: yyyy/mm/dd
Requisitioner Email: NAME@domain.com
Physician: LAST, FIRST
Physician Hospital: HOSPITAL NAME AND ADDRESS

CASE OVERVIEW

Assay: Whole genome and transcriptome sequencing (WGTS)-80X Tumour, 30X Normal (v3.0)
Primary cancer: Ovarian
Site of biopsy/surgery: Paravertebral Mass
Study: PLACEHOLDER
Patient LIMS ID: PLACEHOLDER
Requisition Approved: 2024/02/02
Date of Report: 2024/05/08
Patient Study ID: None
Tumour Sample ID: PLACEHOLDER
Blood Sample ID: PLACEHOLDER
Report ID: PLACEHOLDER-v1

TREATMENT OPTIONS

Review identified **1** option(s) indicating an FDA Approved and/or NCCN Recommended Biomarker **2** option(s) indicating investigational therapies, and **0** option(s) indicating NCCN-listed biomarkers.

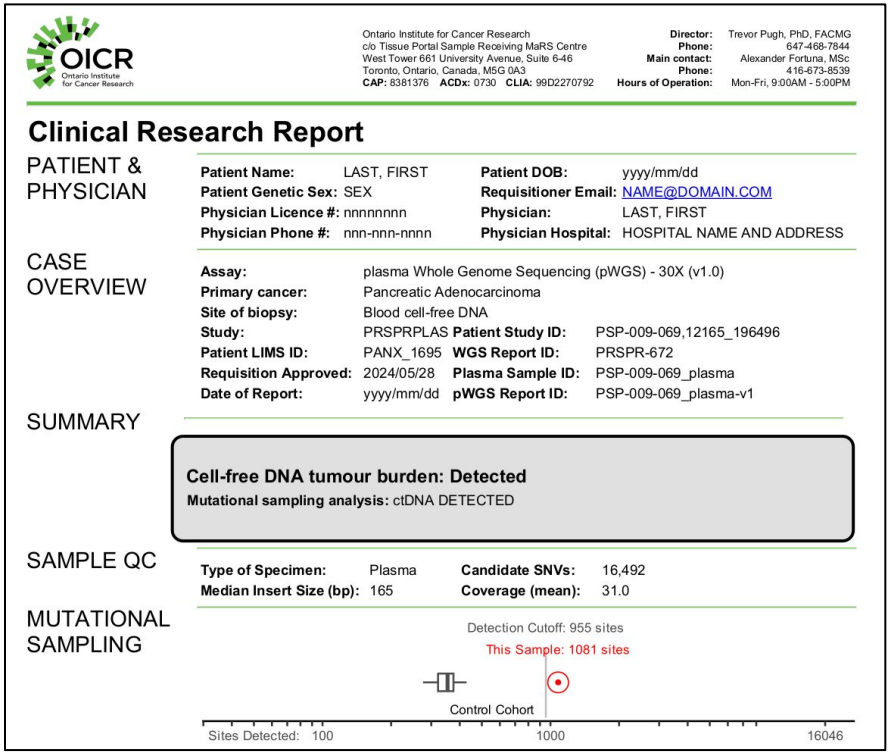
FDA Approved and/or NCCN Recommended Biomarker:

OncoKB	Treatment(s)	Gene(s)	Alteration
1	Dabrafenib+Trametinib	*BRAF*	p.V600E

Investigational Therapies:

OncoKB	Treatment(s)	Gene(s)	Alteration
3B	Dabrafenib, Encorafenib+Cetuximab, Selumetinib, Tovorafenib, Vemurafenib+Atezolizumab+Cobimetinib, Encorafenib+Panitumumab, Trametinib, Vemurafenib, Vemurafenib+Cobimetinib, Encorafenib+Binimetinib	*BRAF*	p.V600E
4	Palbociclib, Ribociclib, Abemaciclib	*CDKN2A*	p.A68Gfs*51

Plasma Whole Genome



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Patient DOB: yyyy/mm/dd
Requisitioner Email: NAME@DOMAIN.COM
Physician: LAST, FIRST
Physician Hospital: HOSPITAL NAME AND ADDRESS

CASE OVERVIEW

Assay: plasma Whole Genome Sequencing (pWGS) - 30X (v1.0)
Primary cancer: Pancreatic Adenocarcinoma
Site of biopsy: Blood cell-free DNA
Study: PRSPRPLAS
Patient LIMS ID: PANX_1695
Requisition Approved: 2024/05/28
Date of Report: yyyy/mm/dd
Patient Study ID: PSP-009-069,12165_196496
WGS Report ID: PRSPR-672
Plasma Sample ID: PSP-009-069_plasma
pWGS Report ID: PSP-009-069_plasma-v1

SUMMARY

Cell-free DNA tumour burden: Detected
Mutational sampling analysis: ctDNA DETECTED

SAMPLE QC

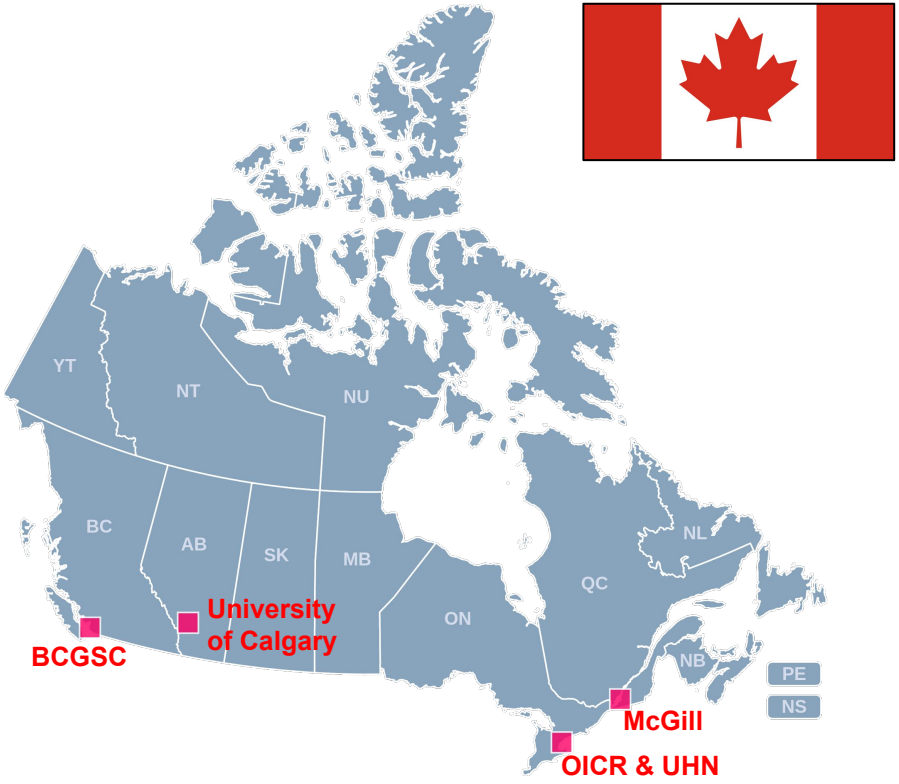
Type of Specimen: Plasma
Median Insert Size (bp): 165
Candidate SNVs: 16,492
Coverage (mean): 31.0

MUTATIONAL SAMPLING

Detection Cutoff: 955 sites
This Sample: 1081 sites
Control Cohort
Sites Detected: 100 1000 16046

Sharing Djerba across Canada

- MOHCCN-O working group:
  - OICR (Ontario)
  - UHN Toronto
  - McGill (Montreal)
  - University of Calgary (Alberta)
  - BCGSC (British Columbia)
  - Broad (USA, observer)
- Can develop plugins independently
- Proof-of-concept done!
- TODO Custom reports for production



Djerba: A modular system for clinical report generation

- Open source; GPL 3.0 license
- **Main:** https://github.com/oicr-gsi/djerba
- **Demo:** https://github.com/oicr-gsi/djerba-demo

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is provided by the Government of Ontario