```
{
   "id": "obj.1275",
   "name": "RNA-seq analysis of ER [HGNC:3467], PR [HGNC:8910], and HER2
[HGNC:3430] status in human [taxID:9606] breast cancer [DOID:1612]",
   "version": "1.0",
   "createdby": "hadley_king@gwmail.gwu.edu",
   "created": "Jan 25, 2017 11:19:27",
   "modified": "Mar 13, 2017 16:33:52",
   "digital_signature": "7LGk9QfzKQ40qdz5b8pS",
   "verification_status": "unreviewed",
   "publication status": "draft",
   "usability_domain": [
        "RNA-seq data analysis to identify the status of ER, PR and HER2
expression.",
        "Diagnostic analysis of breast cancer samples for drug treatment.",
        "Quantitation of RNA-seq derived expression of ER, PR and HER2 in breast
cancer samples to predict therapeutic efficacy based on presence of available
receptors."
    ],
    "authors": [
        {
            "orcid": "0000-0003-1409-4549"
        },
        {
            "name": "Hayley Dingerdissen"
        }
   ],
    "description_domain": {
        "keywords": [
            "breast cancer",
            "RNA-seq",
            "receptor",
            "ER",
            "PR",
            "HER2",
            "biomarker",
            "therapy"
        ],
        "xref": [
            "HGNC:3467",
            "HGNC:8910",
            "HGNC:3430",
            "taxID:9606",
            "DOID:1612"
        ],
        "pipeline_steps": [
            {
                "tool_name": "Cufflinks",
                "tool_desc": "assembles transcripts from RNA-seq data",
                "tool_version": "cufflinks v2.2.1",
```

```
"tool_package": "boost, samtools",
                "step_number": "2",
                "input_uri_list": [
                    "/home/hmhamilt/BRCA/accepted_hits.bam"
                ],
                "output uri list": [
                    "/home/hmhamilt/BRCA/assemblies.txt]"
                1
            },
                "tool_name": "TopHat",
                "tool_desc": "Maps short sequences from spliced transcripts to
whole genomes",
                "tool_version": "TopHat v2.0.13",
                "tool_package": "bowtie2, bowtie2-align, bowtie2-inspect,
bowtie2-build, samtools",
                "step_number": "1",
                "input_uri_list": [
                    "/home/hamilt/GRCH38/GRCH38.fa",
                    "/home/hmhamilt/GRCH38/GRCH38annots.gtf",
"/home/hmhamilt/BRCA/ER_ve_HER2_no_ve/111219_UNC11-SN627_0174_AD0JRJACXX_GGCTAC_L002
_1.fastq",
"/home/hmhamilt/BRCA/ER_ve_HER2_no_ve/111219_UNC11-SN627_0174_AD0JRJACXX_GGCTAC_L002
_2.fastq",
"/home/hmhamilt/BRCA/HER2 ve/111304 UNC11-SN456 0325 KE2KTLCANN GGCTAC L003 1.fastq
/home/hmhamilt/BRCA/HER2_ve/111304_UNC11-SN456_0325_KE2KTLCANN_GGCTAC_L003_2.fastq
/home/hmhamilt/BRCA/ER_HER2_no_ve/111267_UNC11-SN897_2134_JL9FIWCLLS_GGCTAC_L001_1.f
astq",
"/home/hmhamilt/BRCA/ER_HER2_no_ve/111267_UNC11-SN897_2134_JL9FIWCLLS_GGCTAC_L001_2.
fastq"
                ],
                "output_uri_list": [
                    "/home/hmhamilt/BRCA/accepted_hits.bam"
                ]
            },
                "tool_name": "Cuffmerge",
                "tool_desc": "merge reported transcripts with gtf annotations",
                "tool_version": "cufflinks v2.2.1",
                "tool_package": "boost, samtools",
                "step_number": "3",
                "input uri list": [
                    "/home/hmhamilt/BRCA/assemblies.txt"
                ],
                "output_uri_list": [
                    "/home/hmhamilt/BRCA/merged.gtf"
                ]
```

```
},
                 "tool_name": "Cuffdiff",
                 "tool_desc": "perform differential expression tests",
                 "tool_version": "cufflinks v2.2.1",
                 "tool_package": "boost, samtools",
                 "step_number": "4",
                 "input_uri_list": [
                     "/home/hmhamilt/BRCA/merged.qtf"
                 ],
                 "output_uri_list": [
                     "/home/hmhamilt/BRCA/genes.fpkm_tracking"
                 ]
             }
    },
    "execution_domain": {
        "script": "<a href="http://128.164.35.92/home/hmhamilt/BRCA/rna-seq.cwl"">http://128.164.35.92/home/hmhamilt/BRCA/rna-seq.cwl</a>",
        "pipeline_version": "0.0",
        "platform": "HIVE",
        "driver": "http://128.164.35.92/cwl-tool",
        "prerequisites": [
             "TopHat2",
             "Cufflinks",
             "Cuffmerge",
             "Cuffdif",
             "cwl-tool"
        ],
        "env_parameters": [
             "cwlVersion: cwl:draft-3"
        1
    },
    "parametric_domain": {
        "tophat_threads": "4",
        "tophat_no-coverage-search": "on",
        "cufflinks_threads": "4",
        "cuffmerge threads": "4"
    },
    "io_domain": {
        "reference_uri_list": [
"ftp://ftp.ncbi.nlm.nih.gov/genbank/genomes/Eukaryotes/vertebrates_mammals/Homo_sapi
ens/GRCh38/GRCH38annots.gtf",
"ftp://ftp.ncbi.nlm.nih.gov/genbank/genomes/Eukaryotes/vertebrates_mammals/Homo_sapi
ens/GRCh38/GRCH38annots.fa"
        "input_uri_list": [
"http://128.164.35.92/home/hmhamilt/BRCA/ER_ve_HER2_no_ve/111219_UNC11-SN627_0174_AD
```

0JRJACXX_GGCTAC_L002_1.fastq",