In [1]:
```
from genefab import get_datasets, GLDS
```

In [2]:
```
datasets = get_datasets(
    ptype="flight", organism="mus", factor="radiation", assay="transcript",
    maxcount=3
)
```

```
looking up ptype(s): "Spaceflight Study", "Spaceflight Project", "Spaceflight", "Flight Study", "Flight",
looking up organism(s): "Mus musculus",
looking up factor(s): "Absorbed Radiation Dose", "Ionizing Radiation", "Ionzing Radiation", "Irradiation",
"post radiation timepoint", "Radiation", "Radiation Distance", "Radiation dosage", "radiation dose", "radiat
ion type", "Radiation, Ionzing",
looking up assay(s): "transcription profiling",
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/search/?term=GLDS&type=cgene&size=3&ffield=Proj
ect+Type&fvalue=Spaceflight+Study&ffield=Project+Type&fvalue=Spaceflight+Project&ffield=Project+Type&fvalue=
Spaceflight&ffield=Project+Type&fvalue=Flight+Study&ffield=Project+Type&fvalue=Flight&ffield=organism&fvalue
=Mus+musculus&ffield=Study+Factor+Name&fvalue=Absorbed+Radiation+Dose&ffield=Study+Factor+Name&fvalue=Ionizi
ng+Radiation&ffield=Study+Factor+Name&fvalue=Ionzing+Radiation&ffield=Study+Factor+Name&fvalue=Irradiation&f
field=Study+Factor+Name&fvalue=post+radiation+timepoint&ffield=Study+Factor+Name&fvalue=Radiation&ffield=Stu
dy+Factor+Name&fvalue=Radiation+Distance&ffield=Study+Factor+Name&fvalue=Radiation+dosage&ffield=Study+Facto
r+Name&fvalue=radiation+dose&ffield=Study+Factor+Name&fvalue=radiation+type&ffield=Study+Factor+Name&fvalue=
Radiation%2C+Ionzing&ffield=Study+Assay+Measurement+Type&fvalue=transcription+profiling (https://genelab-dat
a.ndc.nasa.gov/genelab/data/search/?term=GLDS&type=cgene&size=3&ffield=Project+Type&fvalue=Spaceflight+Study
&ffield=Project+Type&fvalue=Spaceflight+Project&ffield=Project+Type&fvalue=Spaceflight&ffield=Project+Type&f
value=Flight+Study&ffield=Project+Type&fvalue=Flight&ffield=organism&fvalue=Mus+musculus&ffield=Study+Factor
+Name&fvalue=Absorbed+Radiation+Dose&ffield=Study+Factor+Name&fvalue=Ionizing+Radiation&ffield=Study+Factor+
Name&fvalue=Ionzing+Radiation&ffield=Study+Factor+Name&fvalue=Irradiation&ffield=Study+Factor+Name&fvalue=po
st+radiation+timepoint&ffield=Study+Factor+Name&fvalue=Radiation&ffield=Study+Factor+Name&fvalue=Radiation+D
istance&ffield=Study+Factor+Name&fvalue=Radiation+dosage&ffield=Study+Factor+Name&fvalue=radiation+dose&ffie
ld=Study+Factor+Name&fvalue=radiation+type&ffield=Study+Factor+Name&fvalue=Radiation%2C+Ionzing&ffield=Study
+Assay+Measurement+Type&fvalue=transcription+profiling)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/study/data/GLDS-87/ (https://genelab-data.ndc.n
asa.gov/genelab/data/study/data/GLDS-87/)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/glds/files/87 (https://genelab-data.ndc.nasa.go
v/genelab/data/glds/files/87)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/study/data/GLDS-173/ (https://genelab-data.ndc.
nasa.gov/genelab/data/study/data/GLDS-173/)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/glds/files/173 (https://genelab-data.ndc.nasa.g
ov/genelab/data/glds/files/173)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/study/data/GLDS-25/ (https://genelab-data.ndc.n
asa.gov/genelab/data/study/data/GLDS-25/)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/glds/files/25 (https://genelab-data.ndc.nasa.go
v/genelab/data/glds/files/25)
```

In [3]:
```
datasets
```

Out[3]:
```
[GLDS-87 (number of assays: 1; factors: Spaceflight, Absorbed Radiation Dose),
 GLDS-173 (number of assays: 1; factors: Space Flight, Absorbed Radiation Dose),
 GLDS-25 (number of assays: 1; factors: Space Flight, Absorbed Radiation Dose)]
```

In [4]:
```
glds = GLDS("GLDS-116")
```

```
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/study/data/GLDS-116/ (https://genelab-data.ndc.nasa.gov/genelab/data/study/data/GLDS-116/)
Parsing url:  https://genelab-data.ndc.nasa.gov/genelab/data/glds/files/116 (https://genelab-data.ndc.nasa.gov/genelab/data/glds/files/116)
```

In [5]:
```
glds.factors
```

Out[5]:
```
['Microgravity', 'Absorbed Radiation Dose']
```

In [6]:
```
len(glds.assays)
```

Out[6]:
```
2
```

In [7]:
```
assay = glds.assays[0]
assay.dataframe
```

Out[7]:

	Comment: Data Analysis Report 1	Protocol REF	Hybridization Assay Name	Array Data File	Protocol REF	Comment: Data Analysis Report 2	Comment: Derived Array Data FIle 2	Comment: Array Data File 2	Comment: Group Name	Protocol REF	Extract Name	Protocol REF	S
0	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Control Group	nucleic acid hybridization	A32 Extract	data collection	
1	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Control Group	nucleic acid hybridization	A34 Extract	data collection	
2	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Control Group	nucleic acid hybridization	A36 Extract	data collection	
3	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Control Group	nucleic acid hybridization	A38 Extract	data collection	
4	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Control Group	nucleic acid hybridization	A40 Extract	data collection	
5	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Control Group	nucleic acid hybridization	A42 Extract	data collection	
6	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Group 1	nucleic acid hybridization	F52 Extract	data collection	
7	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Group 1	nucleic acid hybridization	F54 Extract	data collection	

	Comment: Data Analysis Report 1	Protocol REF	Hybridization Assay Name	Array Data File	Protocol REF	Comment: Data Analysis Report 2	Comment: Derived Array Data FIle 2	Comment: Array Data File 2	Comment: Group Name	Protocol REF	Extract Name	Protocol REF	S
8	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Group 1	nucleic acid hybridization	F60 Extract	data collection	
9	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Group 1	nucleic acid hybridization	F64 Extract	data collection	
10	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Group 1	nucleic acid hybridization	F66 Extract	data collection	
11	*PCR Array Analysis PAMM-013.pdf	normalization data transformation	Mouse Extracellular Matrix and Adhesion Molecu...	*PCR Array Analysis PAMM-013.csv	RNA extraction	*PCR Array Analysis PAMM-065.pdf	*PCR Array Analysis PAMM-065_derived.csv	*PCR Array Analysis PAMM-065.csv	Group 1	nucleic acid hybridization	F74 Extract	data collection	

In [8]:
```
assay.get_file_url("*PCR Array Analysis PAMM-013.csv")
```

Out[8]:
```
'https://genelab-data.ndc.nasa.gov/datamanager/file/Home/Public/genelab/GLDS-116/microarray/GLDS-116_microarray_PCR Array Analysis PAMM-013.csv'
```