African Genomic Medicine Portal

Tutorial

Introduction

The African Genomic Medicine Portal (AGMP) functions as a curated resource for researchers around the world who are conducting genomics research on African and African-ancestry populations. The portal may also be useful for individuals working in the health sector, such as healthcare workers, pharmacists, and policymakers, though it was designed as a research tool and should not be used for clinical decisions. The portal functions as a gateway to data relevant for African genomic medicine research, including pharmacogenomics and clinical/disease research, accessing, and providing African-specific data from existing resources an easily accessible manner.

AGMP retrieves and curates data from various resources. The current release contains data from PharmGKB and DisGeNET

This tutorial provides a step by step guide to searching data in the Portal.

Search:

1. Access AGMP using the following link: https://agmp.h3abionet.org/. On this page, **four main data categories** will be displayed: **Disease**, **Drug**, **Variant**,and **Gene**, as illustrated **Figure 1**.

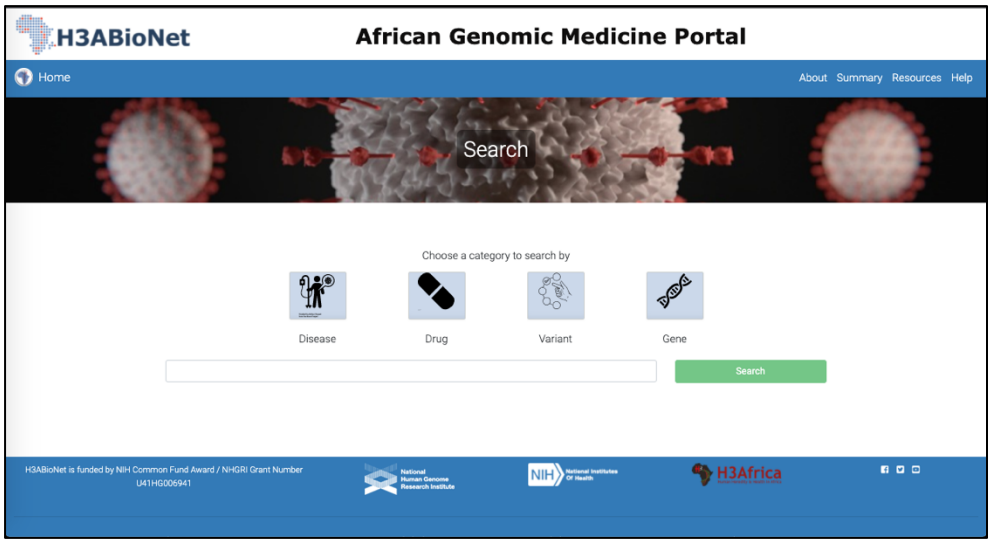

Figure 1. AGMP search page.

2. A user may search based on their preferred data category by selecting the *corresponding data category logo* (Disease, Drug, Variant or Gene), as illustrated in **Figure 2A-D**. **Results are customized according to the data category** selected.

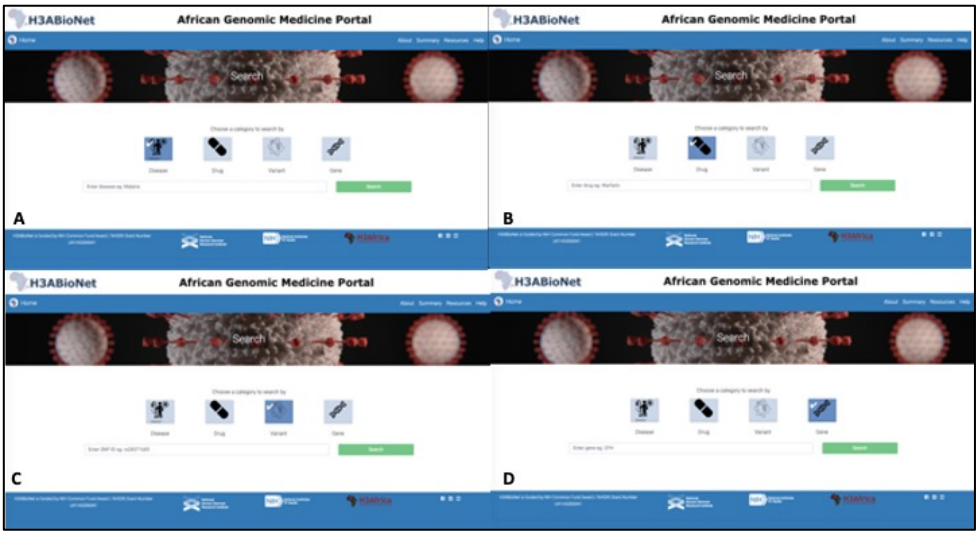

Figure 2. A) Disease category selected; B) Drug category selected; C) Variant category selected; D) Gene category selected.

3. Enter a search term into the search box and select *Search*. Matching results will appear below the text box, as illustrated in **Figure 3A-D**.

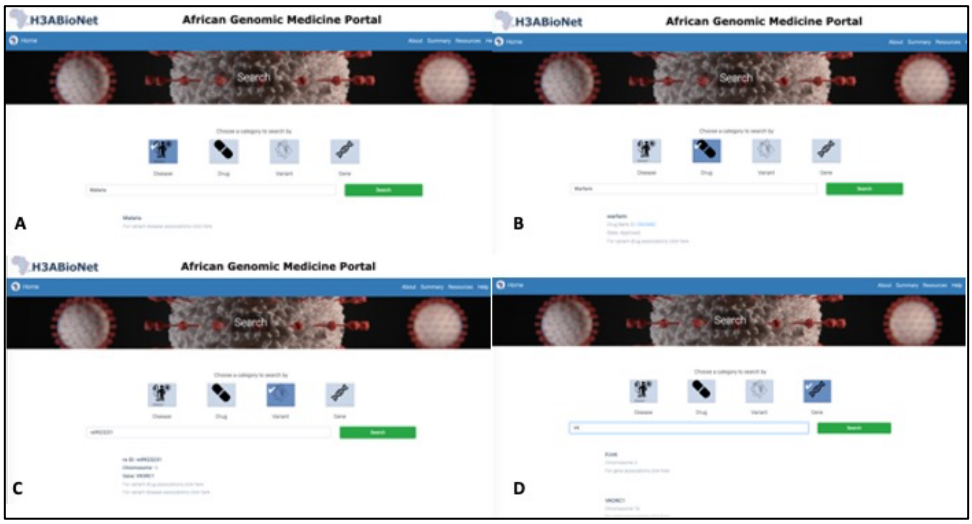

Figure 3. A) Disease result; B) Drug result; C) Variant result; D) Gene result.

Results:

*NB: Results are discussed by the data search category selected during **Search**.*

1. Disease Results:

1.1. When searching by a disease, a list of relevant results appears below the search box. To proceed to complete results, select the “For variant-disease associations click here” button, as illustrated in **Figure 3A**.

1.2. As illustrated in **Figure 4**, the results page will contain a list of variant-disease associations. Table contents are described in **Table 1**.

Figure 4. Tabulated Disease result.

Table 1. Descriptions of Disease results column headers.

Variant	The genetic variants which have been associated with the disease of interest.
Disease	The disease of interest entered in the search box.
Gene	The gene in which the variant is located.
Significance	The p-value observed for the association in the given study.
Country	The country of origin of the research participants.
Studies	The study associated with the result.

2. Drug Results:

2.1. When searching by a drug, a list of relevant results appears below the search box. To proceed to complete results, select the “For variant-drug associations click here” button, as illustrated in **Figure 3B**.

2.2. As illustrated in **Figure 5**, the results page will contain a list of variant-drug associations. Table contents are described in **Table 2**.

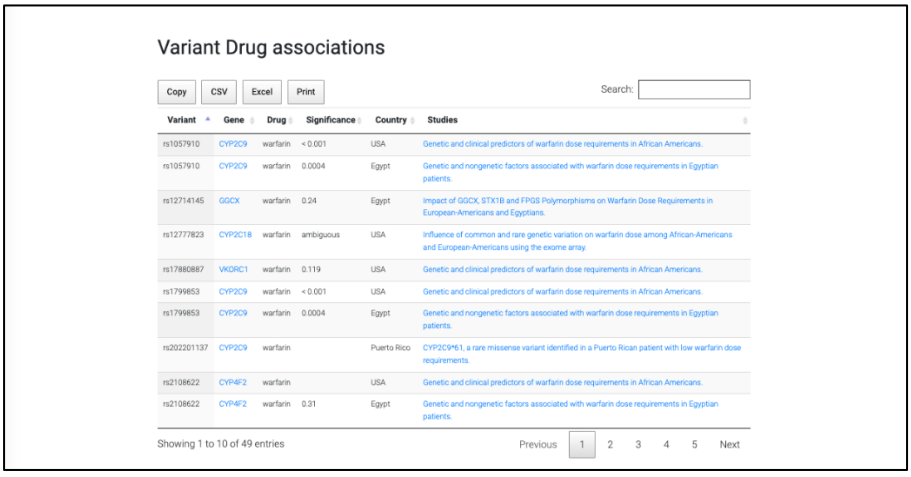

Figure 5. Tabulated Drug result.

Table 2. Descriptions of Drug results column headers.

Variant	The genetic variants which have been associated with the drug of interest.
Drug	The drug of interest entered in the search box.
Gene	The gene in which the variant is located.
Significance	The p-value observed for the association in the given study.
Country	The country of origin of the research participants.
Studies	The study associated with the result.

3. Variant Results:

3.1. When searching by a variant, a list of relevant results appears below the search box. To proceed to complete results, select either the “For variant-

disease associations click here" or the "For variant-drug associations click here" button, as illustrated in **Figure 3C**.

3.2. Based on the selected button, the results page will contain a list of either variant-disease or variant-drug associations, as illustrated in **Figure 4 and 5**. Table contents are described in **Table 3**.

Table 3. Descriptions of Variant results column headers.

rsID	The genetic variant of interest entered in the search box.
Disease	The diseases associated with the variant of interest.
Drug	The drugs associated with the variant of interest.
Gene	The gene in which the variant of interest is located.
Significance	The p-value observed for the association in the given study.
Country	The country of origin of the research participants.
Studies	The study associated with the result.

4. Gene Results:

4.1. When searching by a gene, a list of relevant results appears below the search box. To proceed to complete results, select the "For gene associations click here", as illustrated in **Figure 3D**.

4.2. As illustrated in **Figure 6A-B**, the results page will contain a description section (**6A**), a Pharmacogenomics Associations section (**6A**) and a Disease Associations section (**6B**). Table contents are described in **Table 4.**

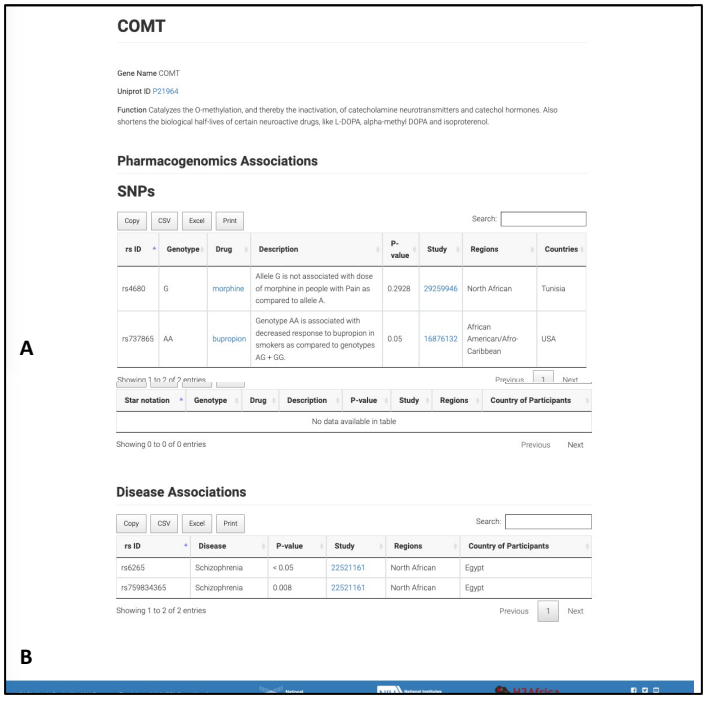

Figure 6. Gene result page.

Table 4. Descriptions of Gene results column headers.

Variant	The genetic variants located in the gene which have been studied in African populations
Genotype	The genotype of a genetic variant associated with a given drug association.
Drug	The drug associated with genetic variant.
Description	A description of the drug association.
P-value	The p-value observed for a given association.
Study	The PMID associated with the associated study.
Regions	The region(s) from which the research participants originate.
Country of Participants	The Country(ies) from which the research participants originate.
Disease	The disease associated with genetic variant.

4.3. Using the task bars found in each table, the user can access different information on either the disease, drug, variant or gene. Table 1 provides an overview of the different types of information found.

Other Resources

1. When clicking on the **Summary** tab, a summary of the Total Number of Genes, Drugs, Diseases and Variants, included in the portal, is provided. The locations fromwhere the data is derived is also illustrated in a user-friendly map.

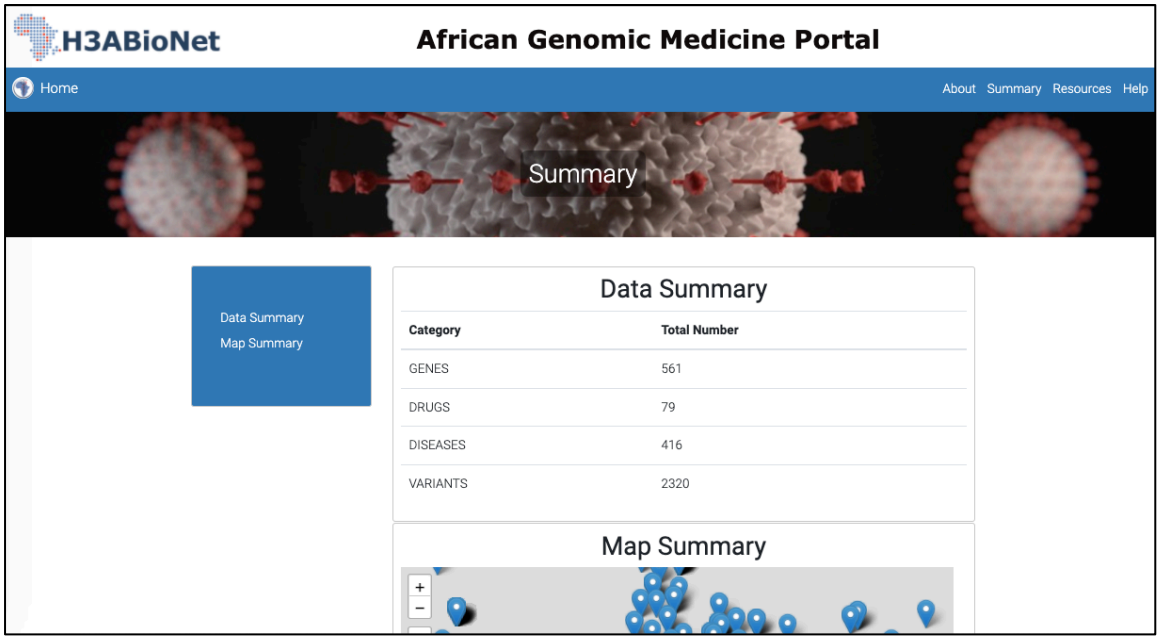

Figure 4: Summary tab.

2. When clicking on the Resources tab, a list of additional H3ABioNet and relevant

external resources are provided, these include: Databases; Tools & Pipelines; and Online Courses.

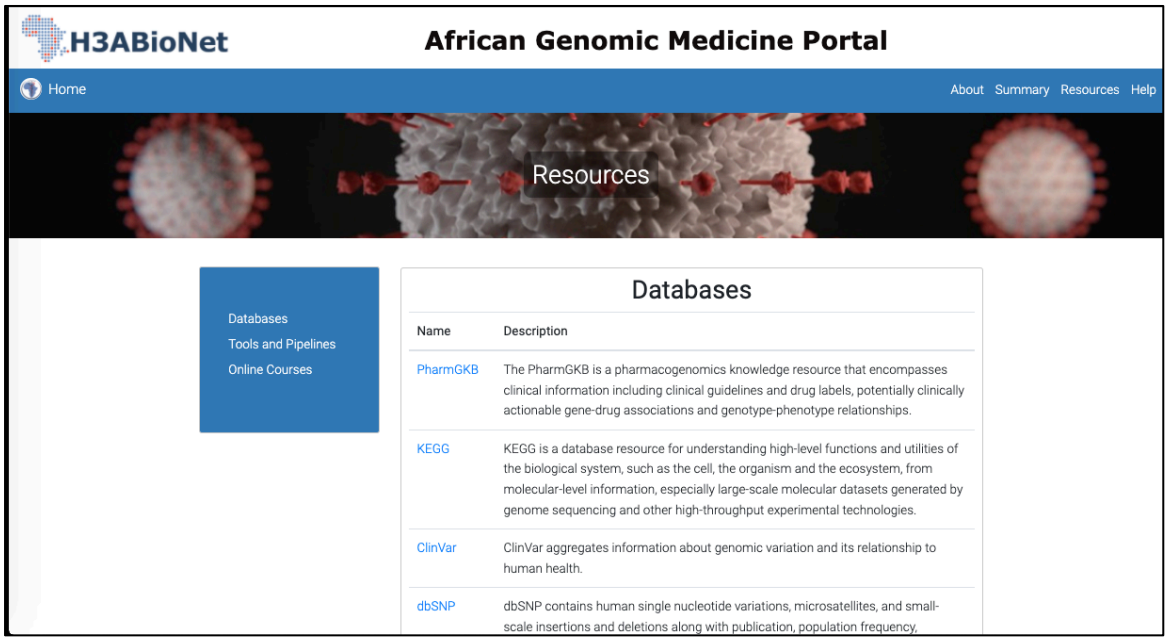

Figure 5: Resources tab.