MS-LAMP

Mass Spectrometry based Lipid(ome) Analyzer & Molecular Platform (MS-LAMP) has been developed to facilitate analysis and interpretation of data obtained from mass spectrometry, in particular of electrospray ionization (ESI) and matrix assisted laser desorption and ionization (MALDI), towards identification of lipids. The main window of the software, whose snapshot is shown in Figure 1.1, consists of buttons to independently search two databases:

- ***Mycobacterium tuberculosis* Lipidome MS-LAMP**
- **General Lipidome MS-LAMP**

There is also an audio based introduction to MS-LAMP, which is included utilizing Microsoft SAPI module. Refer to Figure 1.1

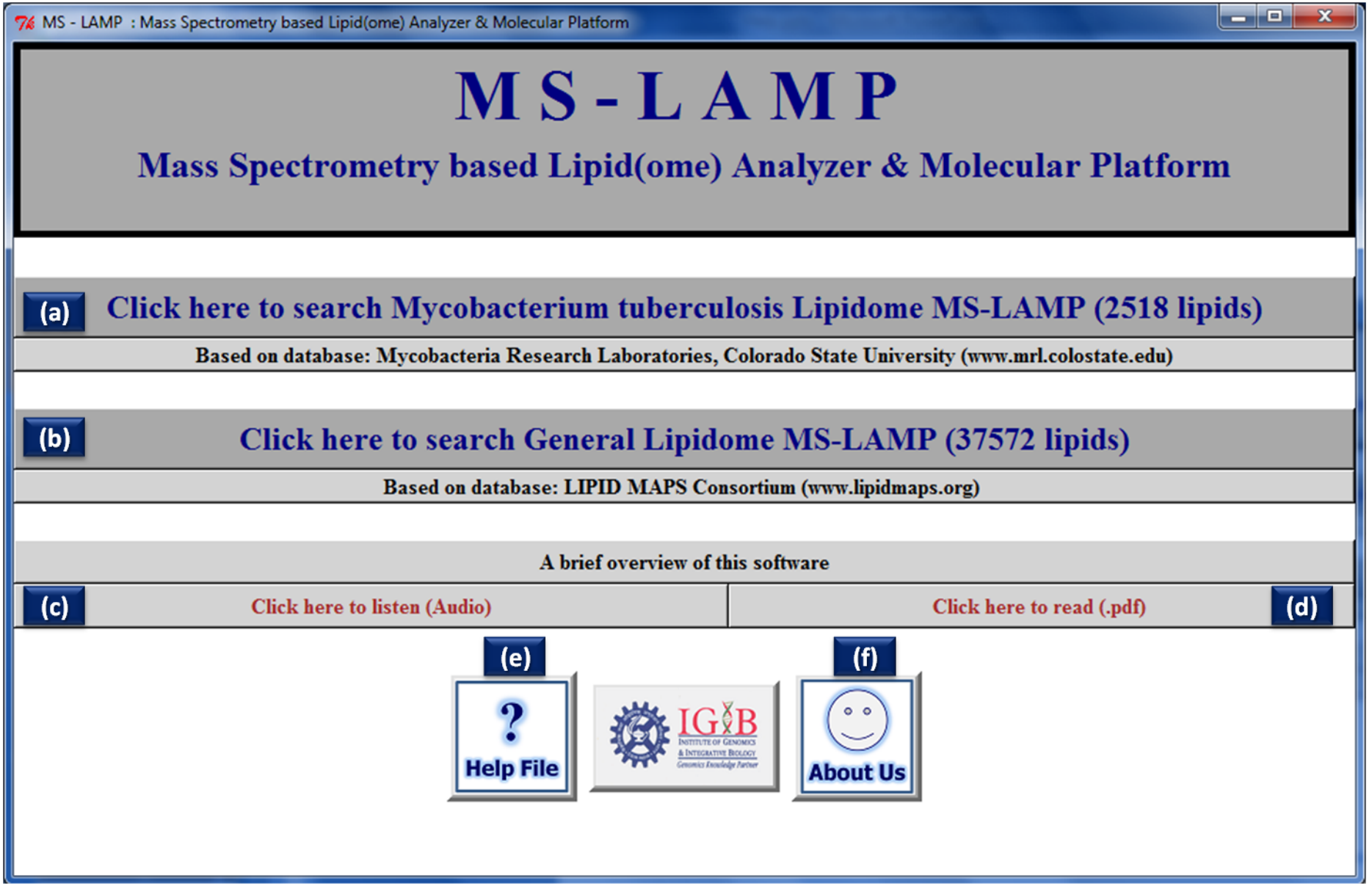

Figure 1.1: Snapshot of main window of Mass Spectrometry based Lipid(ome) Analyzer & Molecular Platform (MS-LAMP): There are buttons to choose and obtain search window of **(a)** General Lipidome MS-LAMP or **(b)** *Mycobacterium tuberculosis* Lipidome MS-LAMP. Clickable buttons: **(c)** to listen to an audio or **(d)** to read (a .pdf file) for getting a brief overview of this software; **(e)** to open Help File (.pdf file) containing entire details of MS-LAMP; **(f)** to know about the people who have contributed and responsible for the making of MS-LAMP.

2. Mycobacterium tuberculosis Lipidome MS-LAMP search window

Lipid database from The Mycobacterium Research Laboratories, Colorado State University (www.mrl.colostate.edu) was used to construct *Mycobacterium tuberculosis* Lipidome MS-LAMP that consists of 2518 lipids. There are 4 different query types available in this search window (see Figure 2.1), viz.

- **Query Type 1** - Single Molecular Mass or m/z value
- **Query Type 2** - List of Molecular Masses or m/z values
- **Query Type 3** - Molecular Mass or m/z range
- **Query Type 4** - Molecular Formula

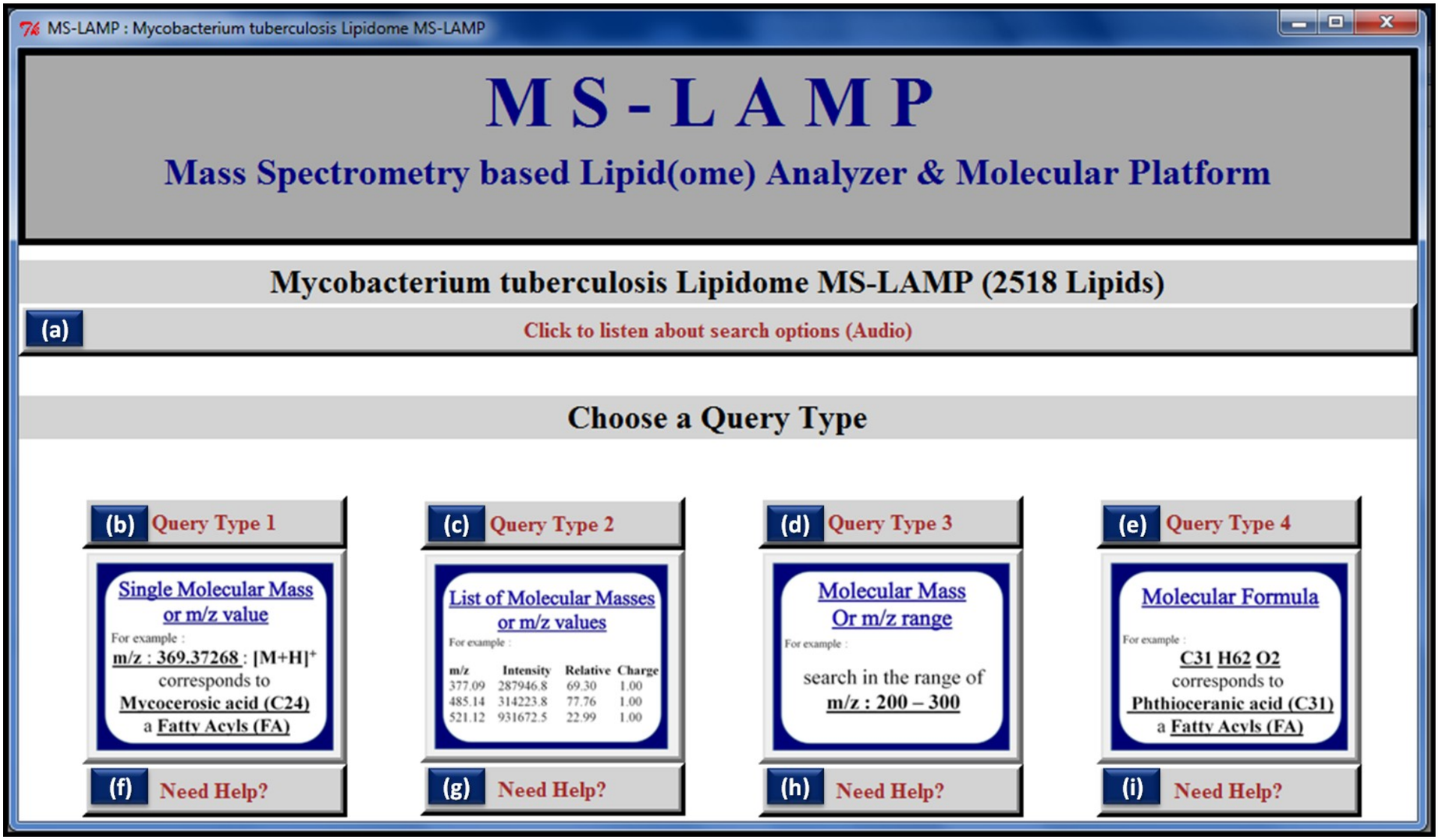

Figure 2.1: *Mycobacterium tuberculosis* Lipidome MS-LAMP search window showing four options (Query Type 1-4) to search within 2518 lipids belonging to Mycobacterium tuberculosis Lipidome MS-LAMP database. Clickable buttons are denoted as **(a)** - **(i)**:

(a) To listen to audio that provides introduction to available search options
(b) To open "**Query Type 1** - Single Molecular Mass or m/z value" window
(c) To open "**Query Type 2** - List of Molecular Masses or m/z values " window
(d) To open "**Query Type 3** - Molecular Mass or m/z range " window
(e) To open "**Query Type 4** - Molecular Formula" window
(f) Help File for **"Query Type 1** - Single Molecular Mass or m/z value" window
(g) Help File for "**Query Type 2** - List of Molecular Masses or m/z values " window
(h) Help File for "**Query Type 3** - Molecular Mass or m/z range " window
(i) Help File for "**Query Type 4** - Molecular Formula" window

3. General Lipidome MS-LAMP search window

General Lipidome MS-LAMP is a database, which has been constructed based on the database of LIPID MAPS Consortium (www.lipidmaps.org) that consists of 30,476 lipids. Using General Lipidome MS-LAMP search window the user can make 5 different types of query viz. (see Figure 3.1)

- **Query Type 1** - Single Molecular Mass or m/z value
- **Query Type 2** - List of Molecular Masses or m/z values
- **Query Type 3** - Molecular Mass or m/z range
- **Query Type 4** - Molecular Formula
- **Query Type 5** - LM ID (LIPID MAPS ID)

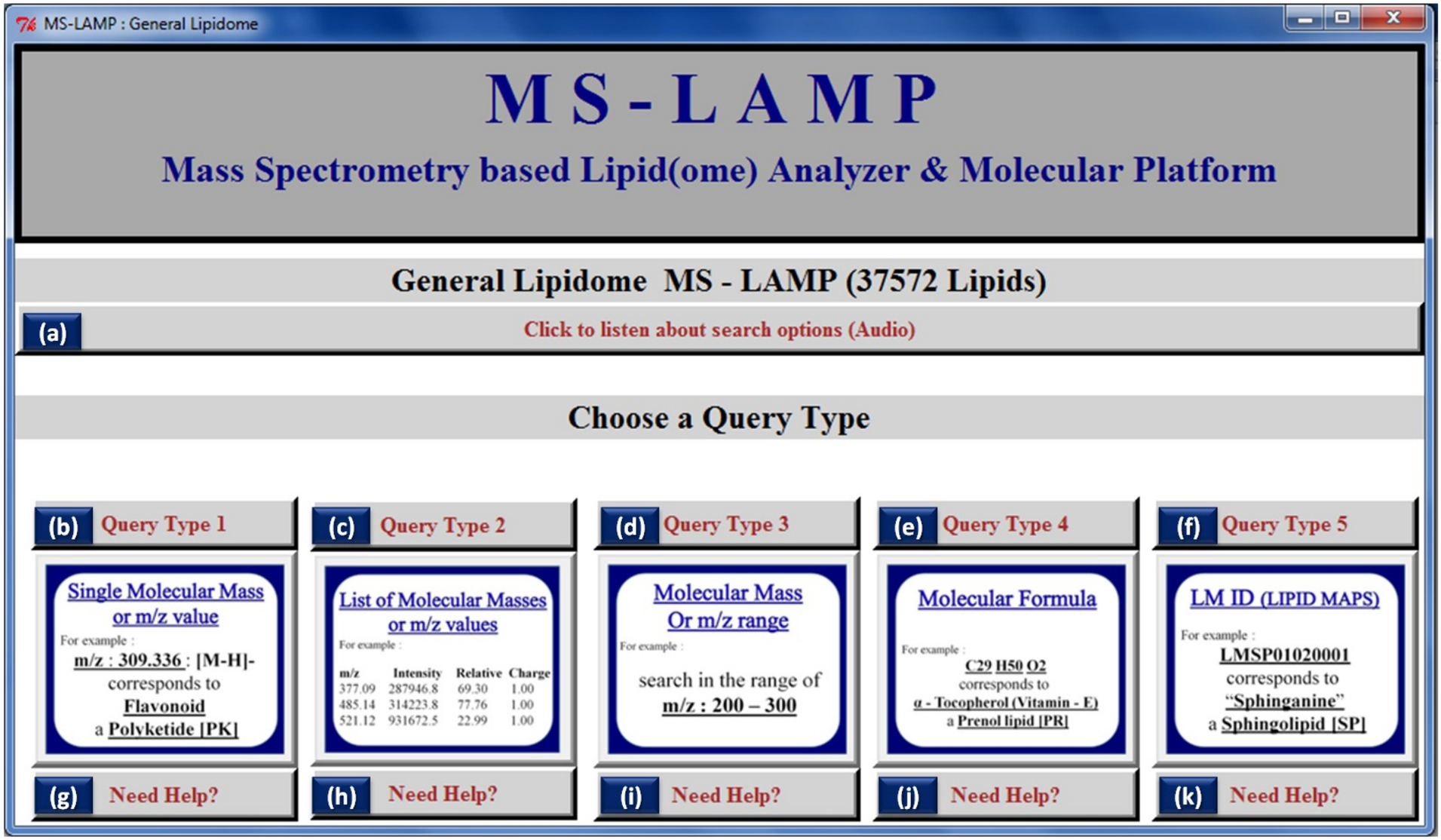

Figure 3.1: General Lipidome MS-LAMP search window showing five options (Query Type 1-5) to search within 30,476 lipids belonging to General Lipidome MS-LAMP database. Clickable buttons are denoted as **(a)** - **(k)**:

- **(a)** To listen to audio that provides introduction to available search options
- **(b)** To open "**Query Type 1** - Single Molecular Mass or m/z value" window
- **(c)** To open "**Query Type 2** - List of Molecular Masses or m/z values " window
- **(d)** To open "**Query Type 3** - Molecular Mass or m/z range " window
- **(e)** To open "**Query Type 4** - Molecular Formula" window
- **(f)** To open "**Query Type 5** - LM ID (LIPID MAPS ID) " window
- **(g)** Help File for "**Query Type 1** - Single Molecular Mass or m/z value" window
- **(h)** Help File for "**Query Type 2** - List of Molecular Masses or m/z values " window
- **(i)** Help File for "**Query Type 3** - Molecular Mass or m/z range " window
- **(j)** Help File for "**Query Type 4** - Molecular Formula" window
- **(k)** Help File for "**Query Type 5** - LM ID (LIPID MAPS ID) " window