



FOOD SAFETY LAB / MILK QUALITY
IMPROVEMENT PROGRAM

Standard Operating Procedure



Title: **Primer Database Search Protocol**

SOP #: **see Wiki**

Version: **02**

Revision Date: **04/24/2020**

Effective Date: **05/01/2020**

Author: **Nancy Carey**

Approved by: **Martin Wiedmann**

Primer Database Search Protocol

FILE NAME: 8.1.1.1.11-Primer Database Search Protocol.doc



TABLE OF CONTENTS

1.	INTRODUCTION	3
	Purpose	
	Scope	
	Definitions	
	Safety	
2.	MATERIALS	4
3.	PROCEDURE	5
4.	TROUBLESHOOTING	7
5.	REFERENCES	8
6.	METHOD REVIEWS & CHANGES	9

\



SECTION 1 INTRODUCTION

1.1 Purpose

The purpose of this document is to set forth procedures, using an Access database, to:

- search by sequence for a previous primer name
- search by name for a previous primer sequence
- look at additional pertinent information about the primers that have been used by the lab

1.2 Scope

This SOP applies to the Food Safety and MQIP Labs.

1.3 Definitions

Access - relational database which, in this case, is being used as a simple search tool.

Primer – short single stranded nucleic acid that serves as starting point for DNA synthesis.

1.4 Safety

There should be no safety issues pertaining to this procedure.



SECTION 2 MATERIALS

- **Computer with Microsoft Access 2010 or higher installed.**
- **List of primer sequence(s) and/or**
- **Name(s) of primer(s) to be found.**



SECTION 3 PROCEDURES

3.1. Opening Access

- (1) Using a shared lab computer, if necessary, click on the Start button.
- (2) Place cursor over Microsoft Access 2010.
- (3) Choose Primer Access Database from the dropdown at right.
- (4) Alternatively, go to P:\FOOD-Labs\BoorWiedmann Lab\LAB STUFF \PRIMER DATABASE\Primer Access Database.

3.2 Searching Access

NOTE – CAUTIONS FOR ALL SEARCHES:

When searching for a specific name or sequence, Access automatically puts quotes around the request when Enter is hit.

For more general requests (when there is an asterisk before, after, or on either side of a request) the word Like will also be added in front of the request.

See the Troubleshooting Section if either of these do not occur, as the search may not be valid (i.e., there may be records that are actually in the database but are not returned in the search because of incorrect syntax).

ALSO – always read and follow any NOTES to the right of the sequence after obtaining results! (e.g., some primers have been renamed, some do not work, etc.)

Items (1)-(6) list general procedures for all searches:

- (1) Double click at left to open the Primer Table Query.
- (2) Click on the Home tab at the top left.
- (3) Click on the View tab just below at the top left and choose Design View.
- (4) After search requests (see a, b, and c below) are entered, click on the red exclamation point at the top of the page to “Run” the query – only the requested records will appear.
(NOTE: See the Troubleshooting Section if the Run button is missing.)
- (5) To save search results/request orders, click on certain rows of the returned results or click on the top left corner (next to Order Date) to copy the entire page to Excel.
- (6) To start another search, again click View and choose Design View.

a. To search in the Sequence field:

- i. In the “Criteria” row, type or copy in the exact sequence. Hit Enter.
- ii. In the “Or” row and any row below it, add any additional sequence(s) to be found. Hit Enter after each entry.
 1. *e.g., entering the sequence AATATATTAATGAAAAGCAGGTGGAG returns the primer LM sigB15 and also the old name sigB15 – again, for any search, always read and follow any NOTES to the right of the sequence!*



iii. Additional types of Sequence Searches:

1. To find all primers that contain a certain part of a sequence, type or copy the request into the search field with an asterisk (*) on one or both sides of it, e.g.:
 - a. **AAATGC* returns any sequence with AAATGC anywhere within the sequence (presently 33 results).*
 - b. **AAATGC returns any sequence with AAATGC at the end (presently 3 results).*
 - c. *AAATGC* returns any sequence with AAATGC at the beginning (presently 1 result).*
This could be used to find longer versions of a sequence: e.g., entering TGTA~~AA~~ATATGGACGGCATCGT returns that sequence and TGATGTA~~AA~~ATATGGACGGCATCGT, also.*

b. To search in the Primer Name field:

- i. In the “Criteria” row, type or copy in the exact primer name.
- ii. In the “Or” row and any row below it, add any additional primer name(s) to be found. Hit Enter after each entry.
 1. *e.g., entering the Primer Name LM sigB15 returns the sequence AATATATTAATGAAAAGCAGGTGGAG.*
- iii. Additional types of Primer Name Searches:
 1. To find all primers that you have constructed since the naming format (i.e., Your Initials # - Name of primer) was instituted, type your initials followed by an asterisk into the search field.
 - a. *e.g., entering BB* return the primers Barbara Bowen has constructed.*
 2. To find all primers that contain a certain part of a Primer Name, type or copy the request into the search field with an asterisk (*) on both sides of it.
 - a. *e.g., *sigB* will return all primers containing sig B.*
 3. In the “Or” row and any row below it, add any additional primer name parts. Hit Enter after each entry.
 - a. *e.g., adding *rpob* to the next line returns all primers containing either sigB or rpob.*
 4. To search for primers containing more than one designation, enter them connected with the word “and.”
 - a. *e.g., *sigB* and *soe* will return primers containing both sigB and soe, such as B90 sigB1SoeA.*

c. To search in the Modifications or Purpose fields:

- i. To return all possibilities, in the “Criteria” row, type or copy in the request with an asterisk at the beginning and the end. Hit Enter.
- ii. In the “Or” row and any row below it, add any additional requests to be found. Hit Enter after each entry.
 1. *e.g., entering *MLST* in the Modifications or Purpose field returns the primers/sequences listed as used for MLST.*



SECTION 4 TROUBLESHOOTING

If quotes do not automatically surround a request after hitting Enter, add them manually then hit Enter.

If the word **Like** does not appear before a general request after hitting Enter, add it before the request (with no spaces) then hit Enter.

If the red “Run” exclamation point is not showing, click on the File and then clickHome tabs at the top of the page to bring up the Query Tools part of the toolbar.

To avoid any loss of data, each time a new primer is constructed and the order is received, Maureen will enter it into the Access database and will copy the entire table into an Excel spreadsheet as a backup.

If you encounter any problems with the database or with your search in particular, please contact Rachel Cheng (ram524) or Maureen Gunderson (mgg53).



SECTION 5

REFERENCES



SECTION 6 METHOD VERSION & CHANGES

VERSION	DATE	EDITOR	COMMENTS
Version 1	09/02/2016	Nancy Carey	Original SOP
Version 2	04/24/2020	Maureen Gunderson	Deleted reference to “Duplicates Field” in 3.2a based on changes to database. Updated SOP to new standard lab template.