

The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

A SIX STEPS PROCESS:

- **STEP 1-** Create a new database
- **STEP 2-** Create the experiment type (Fingerprint)
- **STEP 3-** Import the TIFF files into the Database
- **STEP 4-** Analyze a TIFF:
 1. Convert a TIFF to Gel Strips
 2. Define Curves
 3. Normalize the gel
 4. Find Gel Bands
- **STEP 5-** Link Lanes to Database Entries
- **STEP 6-** Add information on the Isolates (virulence genes, serogroups etc...)

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Step 1: Create a New Database

Double click on the BioNumerics shortcut



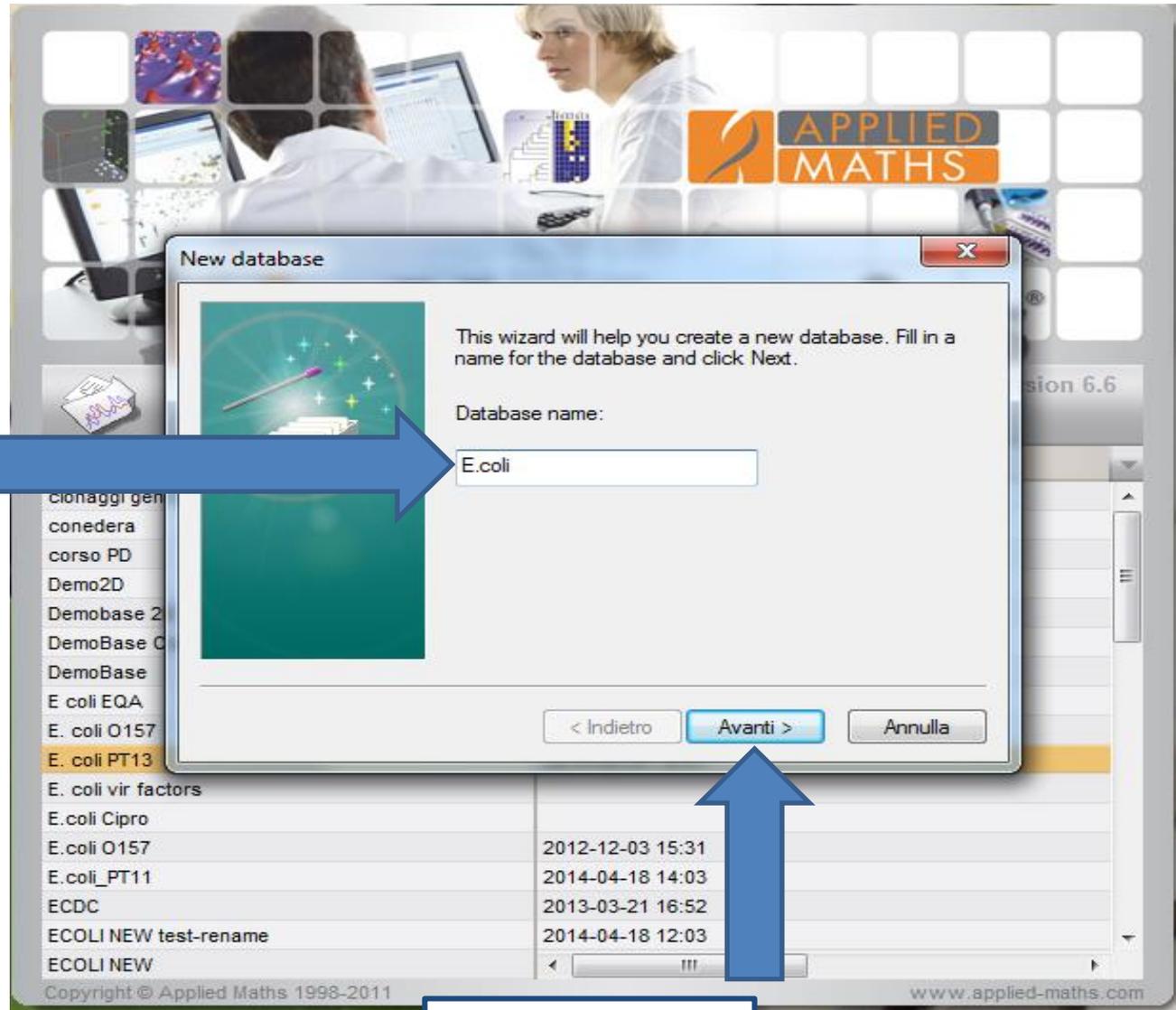
Database	Last accessed	Comment
clonaggi geni target meto EUURL	2012-01-24 18:15	
conedera		
corso PD		
Demo2D		
Demobase 2D	2012-11-27 17:12	
DemoBase Connecte		
DemoBase		
E. coli EQA	2014-04-18 13:04	
E. coli O157	2012-12-03 15:27	
E. coli PT13	2014-06-04 16:07	
E. coli vir factors		
E. coli Cipro		
E. coli O157		
E.coli_PT11		
ECDC		
ECOLI NEW test-rename	2014-04-18 12:03	
ECOLI NEW		

Click "Create new database"

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Step 1: Create a New Database

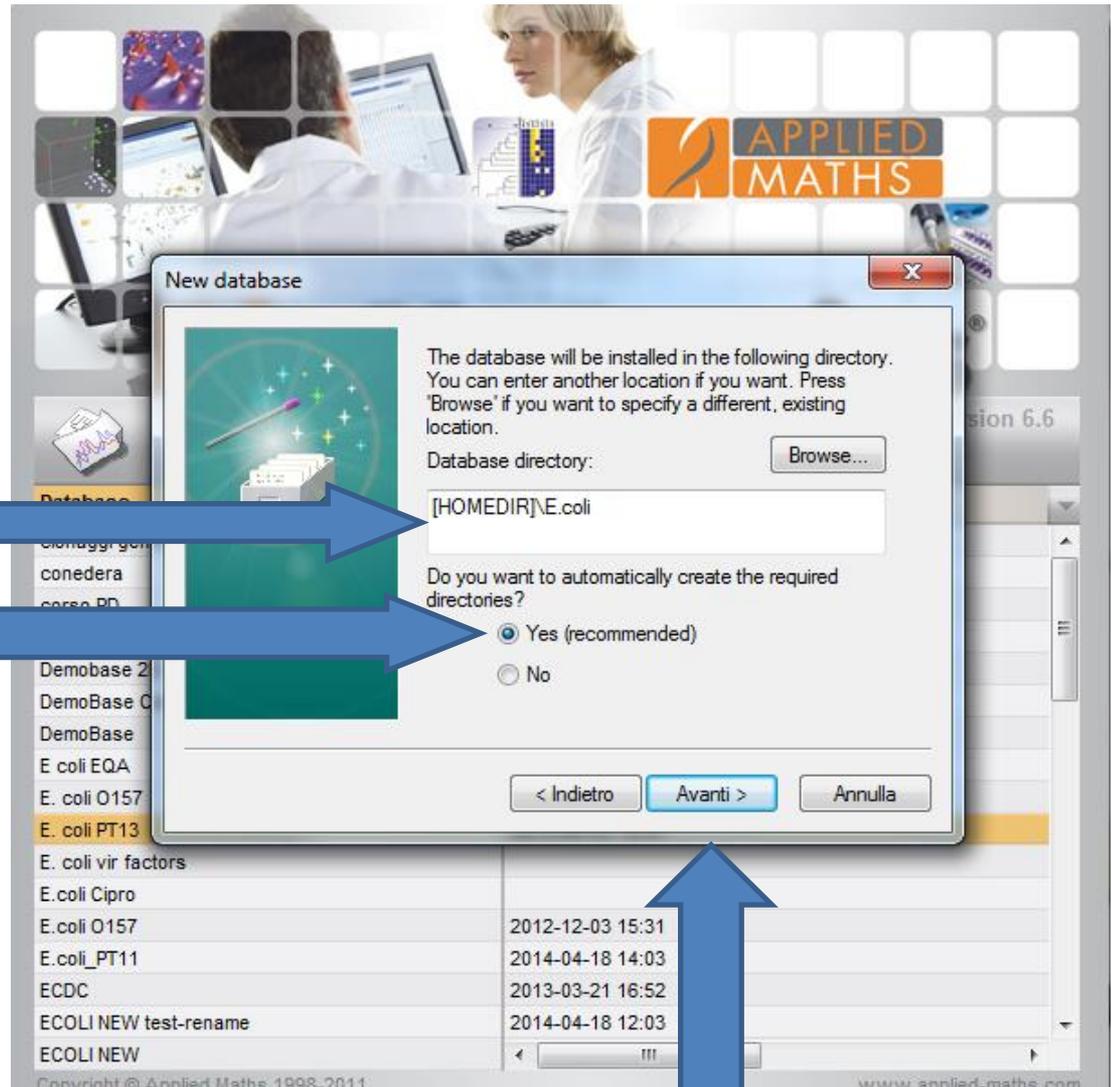
Type in the name for your new database: E.coli



Click "Next"

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Step 1: Create a New Database



Select the default directory

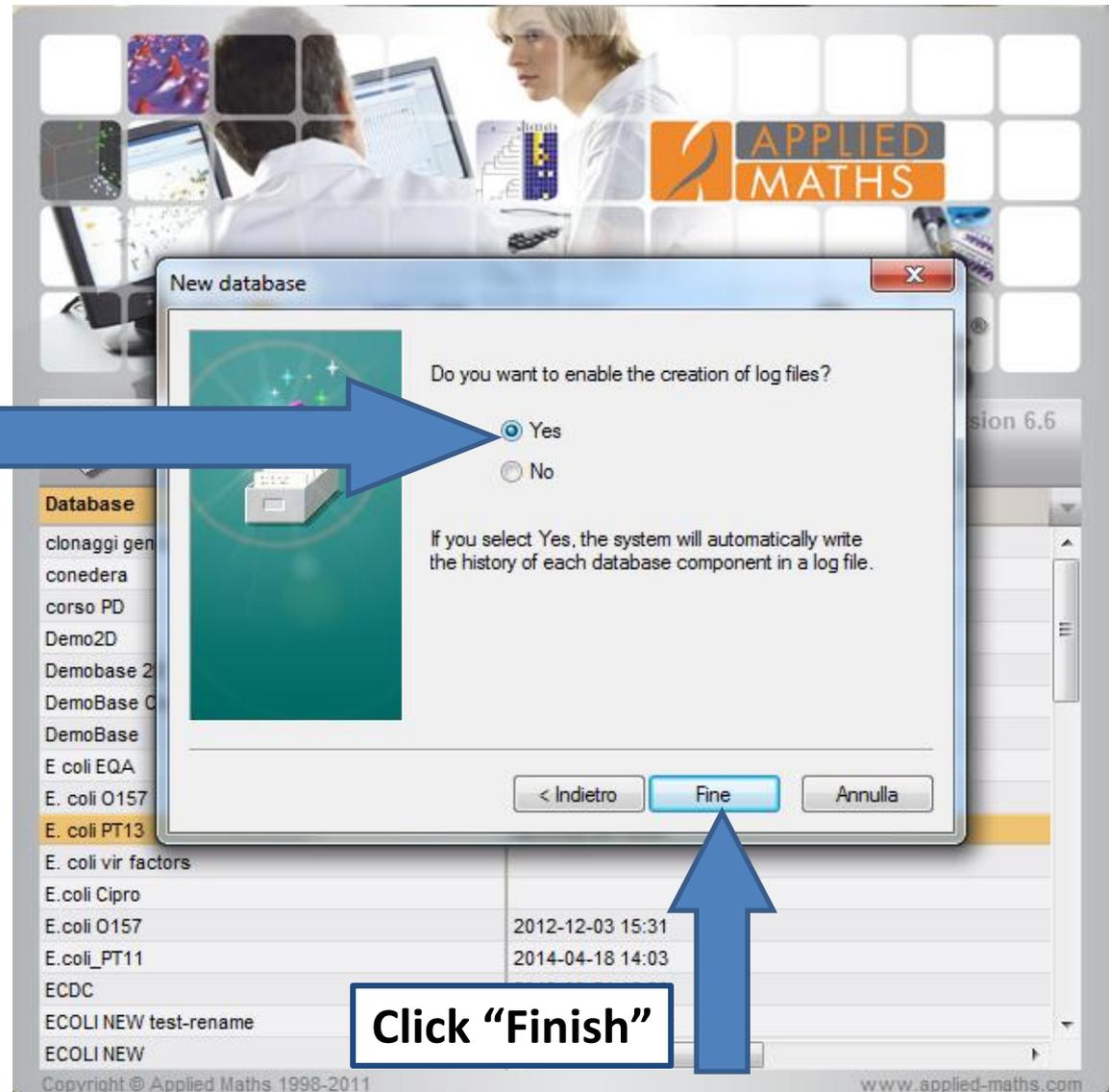
Keep the default at "Yes"

Click "Next"

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Step 1: Create a New Database

Change to "Yes"



Click "Finish"

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Step 1: Create a New Database

Setup new database

Database type:

- New connected database (automatically created)
- New connected database (custom created)
- Existing connected database
- Local database (single user only)

ODBC connection string:

Database type

- Access®
- SQL Server®
- Oracle®
- MySQL®

Store fingerprints in database

Store sequence trace files in database

Make your choice

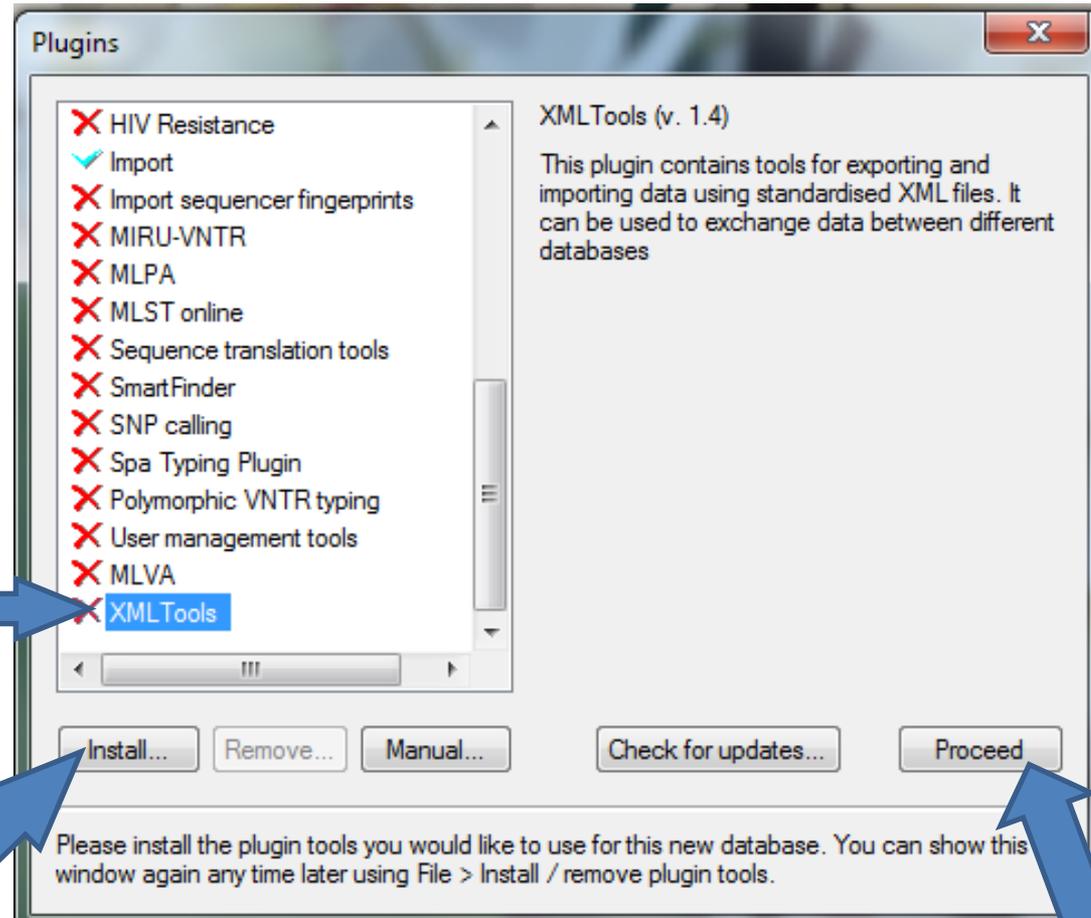
Click «proceed»

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Step 1: Create a New Database

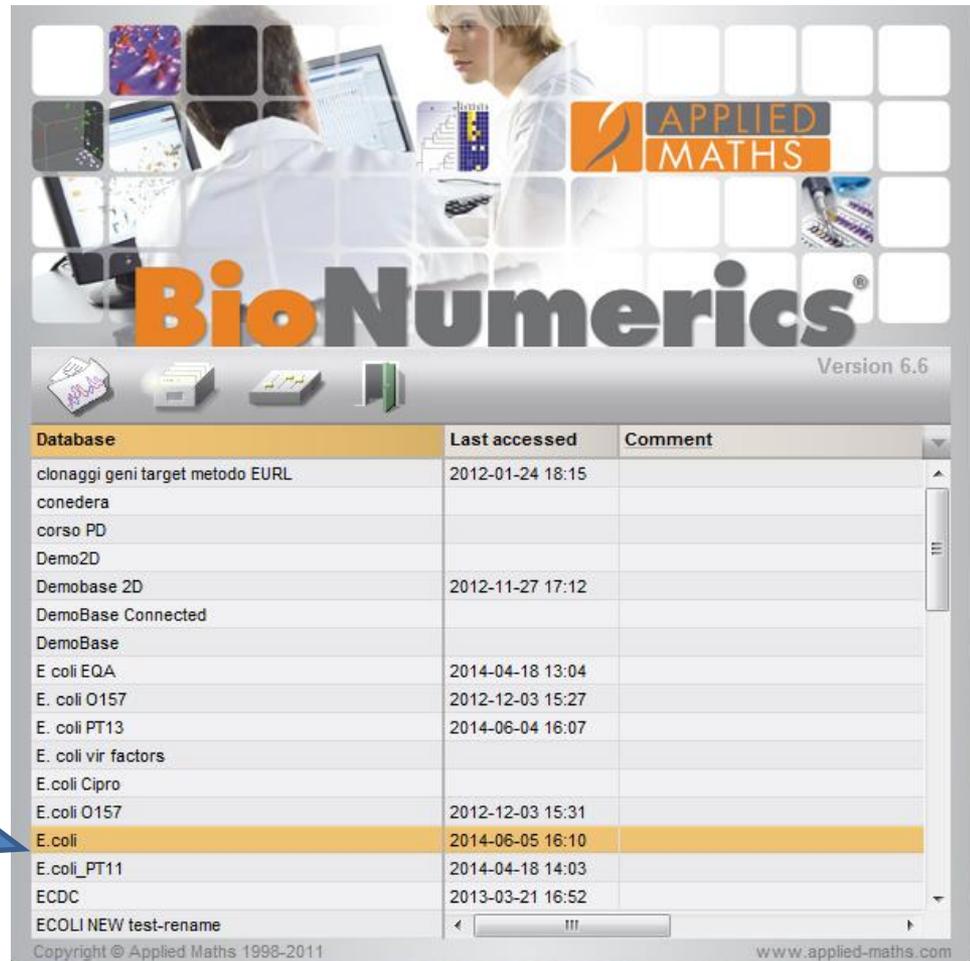
Plug-ins offer additional functionality, such as importing and exporting various types of data

Choose XML Tools Plug-in, and click "Install," then "Proceed"



The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 1: Create a New Database



The screenshot displays the BioNumerics software interface. At the top, there is a header with the 'APPLIED MATHS' logo and the 'BioNumerics' title. Below the header, there is a table listing databases. The table has three columns: 'Database', 'Last accessed', and 'Comment'. The 'E.coli' entry is highlighted in yellow, and a blue arrow points to it from the left. The table contains the following data:

Database	Last accessed	Comment
clonaggi geni target metodo EURL	2012-01-24 18:15	
conedera		
corso PD		
Demo2D		
Demobase 2D	2012-11-27 17:12	
DemoBase Connected		
DemoBase		
E.coli EQA	2014-04-18 13:04	
E.coli O157	2012-12-03 15:27	
E.coli PT13	2014-06-04 16:07	
E.coli vir factors		
E.coli Cipro		
E.coli O157	2012-12-03 15:31	
E.coli	2014-06-05 16:10	
E.coli_PT11	2014-04-18 14:03	
ECDC	2013-03-21 16:52	
ECOLI NEW test-rename		

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Note that your newly created database is listed

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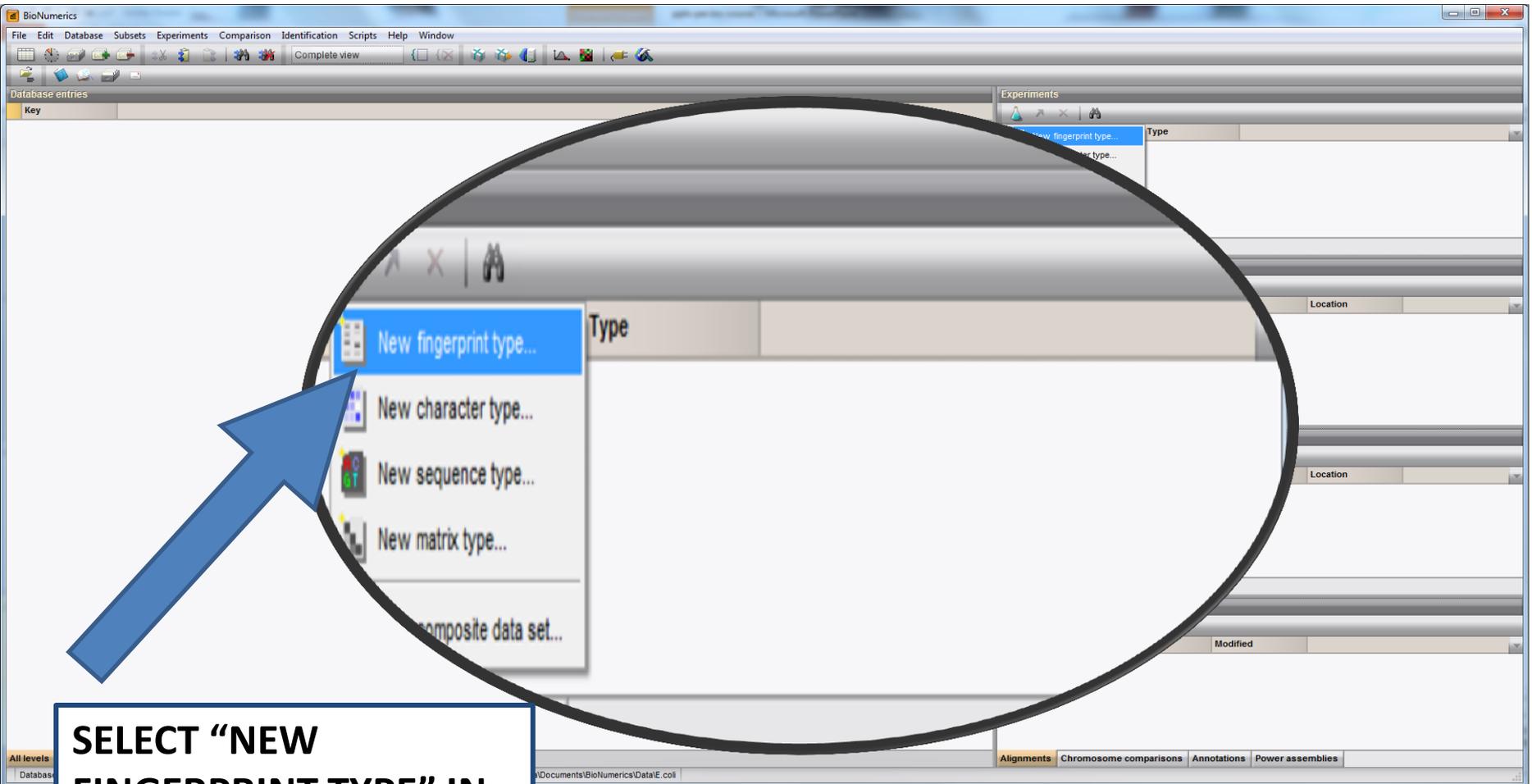
Step 2: Experiment type

IN THE "EXPERIMENT" PANEL SELECT THE FLASK AND CREATE THE NEW EXPERIMENT TYPE...

The screenshot shows the BioNumerics software interface. The main window is titled "BioNumerics" and has a menu bar with "File", "Edit", "Database", "Subsets", "Experiments", "Comparison", "Identification", "Scripts", "Help", and "Window". Below the menu bar is a toolbar with various icons. The interface is divided into several panels. On the left, there is a "Database entries" panel with a "Key" column. On the right, there are several panels: "Experiments", "Files", "Comparisons", "Alignments", and "All levels". The "Experiments" panel is currently selected and shows a table with columns "Name" and "Type". A blue arrow points from a text box to the "Experiments" panel. The text box contains a flask icon and the instruction: "IN THE 'EXPERIMENT' PANEL SELECT THE FLASK AND CREATE THE NEW EXPERIMENT TYPE...". The status bar at the bottom shows "Database: E.coli (connected, _DefaultUser_)", "Entries: Loaded=0, View=0, Selected=0", "0 experiments", and the file path "C:\Users\maugliani_antoinella\Documents\BioNumerics\Data\E.coli".

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Step 2: Experiment type



The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 2: Experiment type

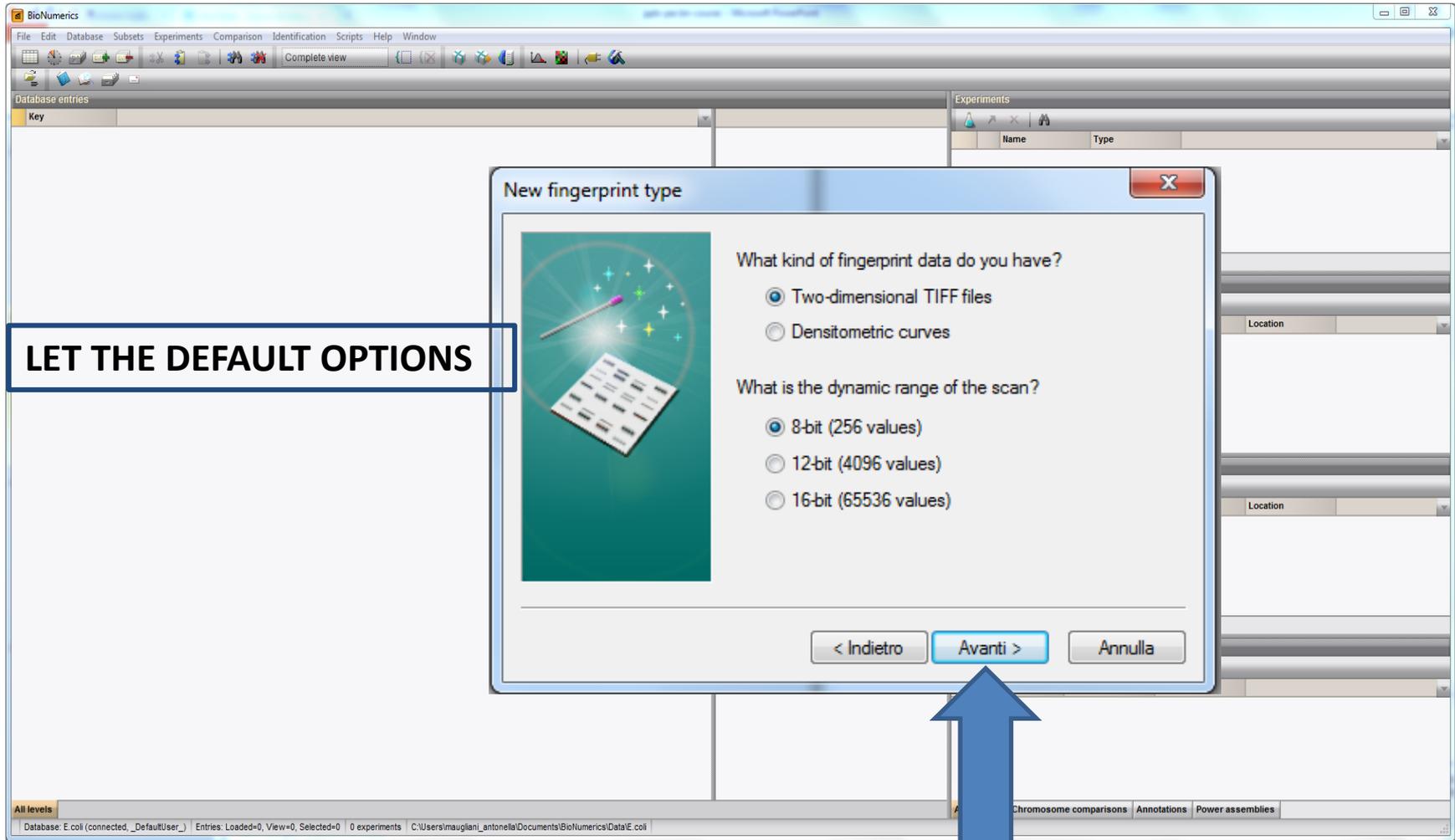
The screenshot displays the BioNumerics software interface. A central dialog box titled "New fingerprint type" is open. It features a green background with a glowing circular graphic containing a test tube and a gel electrophoresis image. The text inside the dialog reads: "This wizard will help you create a new fingerprint type. Fill in a name for the fingerprint type and click Next." Below this, there is a label "Fingerprint type name:" followed by a text input field containing "PFGE_XbaI". At the bottom of the dialog are three buttons: "< Indietro", "Avanti >" (highlighted with a blue arrow), and "Annulla".

A callout box on the right side of the dialog contains the following text: **WRITE THE NAME OF THE FINGERPRINT TYPE (USUALLY: PFGE_NAME OF THE RESTR.ENZ. *XbaI*)**

The background shows the BioNumerics main window with various panels like "Database entries", "Experiments", "Comparisons", and "Alignments". The status bar at the bottom indicates "Elementi: 6.872" and "Tutte le cartelle sono aggiornate."

The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 2: Experiment type



LET THE DEFAULT OPTIONS

New fingerprint type

What kind of fingerprint data do you have?

- Two-dimensional TIFF files
- Densitometric curves

What is the dynamic range of the scan?

- 8-bit (256 values)
- 12-bit (4096 values)
- 16-bit (65536 values)

< Indietro **Avanti >** Annulla

Database: E.coli (connected_DefaultUser_) | Entries: Loaded=0, View=0, Selected=0 | 0 experiments | C:\Users\maugliani_anttonella\Documents\BioNumerics\Data\E.coli

Chromosome comparisons Annotations Power assemblies

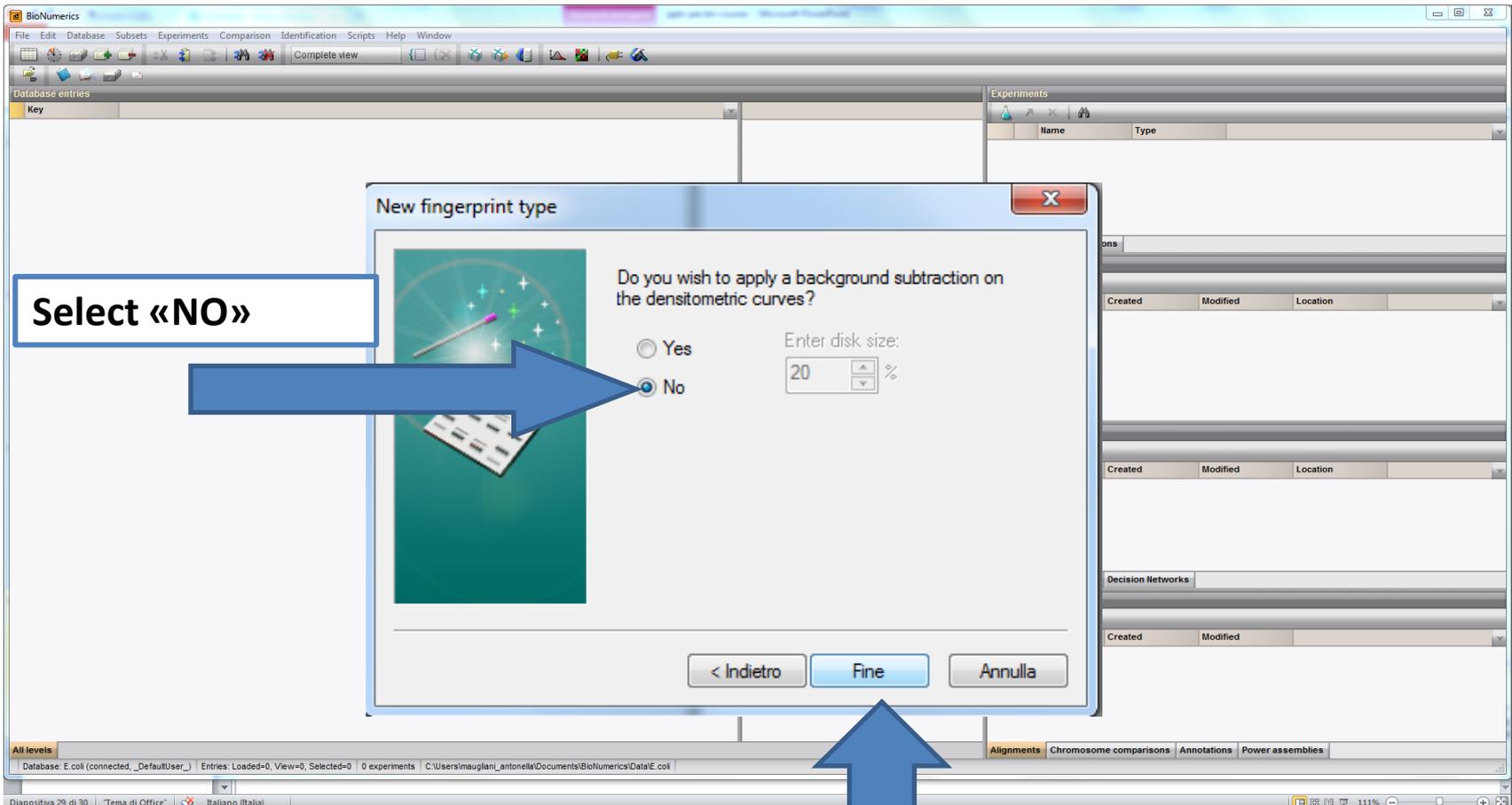
The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 2: Experiment type

REMEMBER: IF YOU SELECT "YES" YOU MUST PUT THE GEL WITH BLACK BACKGROUND...

The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

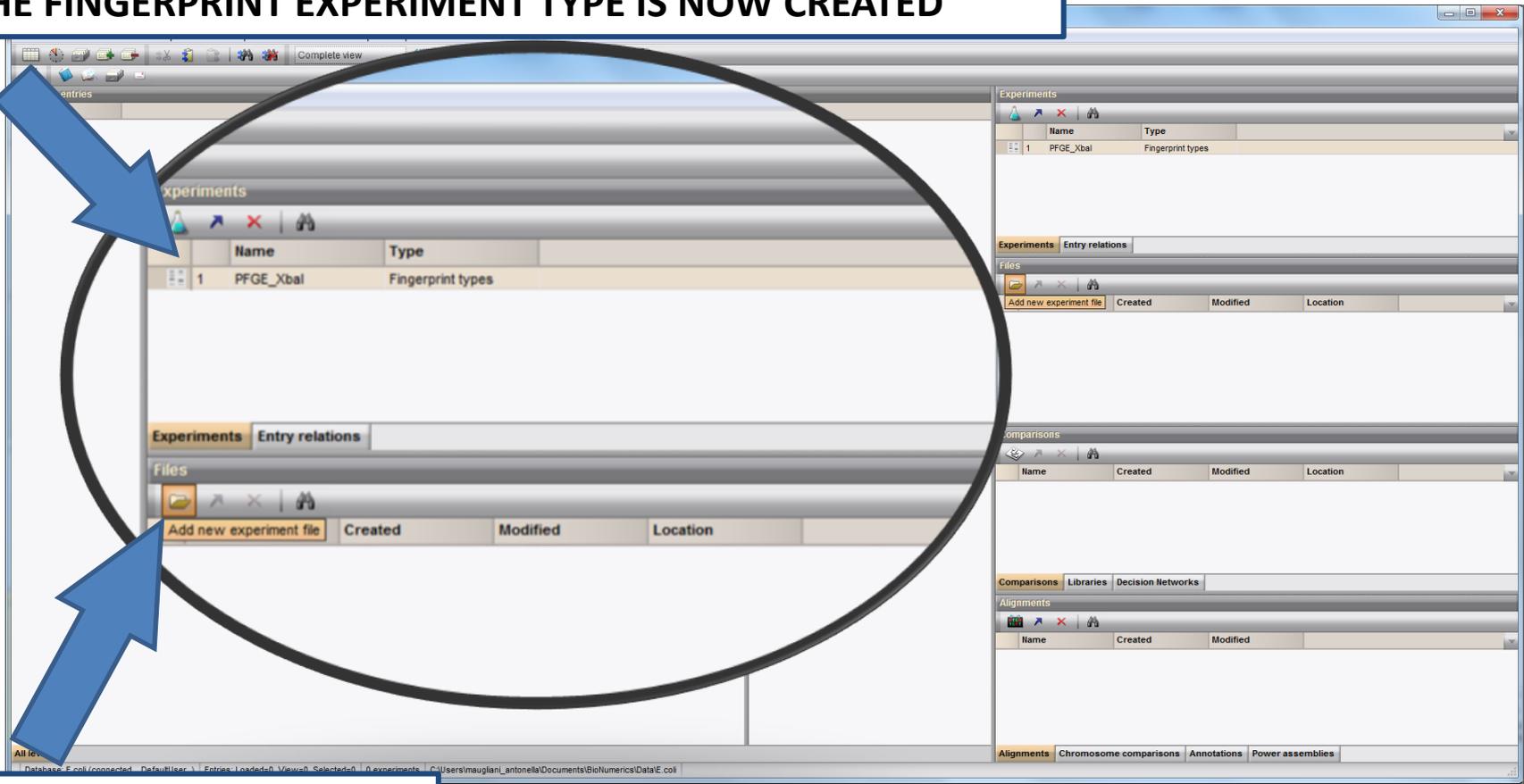
Step 2: Experiment type



The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 2-3 : Experiment type – import TIFF files

THE FINGERPRINT EXPERIMENT TYPE IS NOW CREATED



CLICK ON “ADD NEW EXPERIMENT FILE”

The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 3: Importing TIFF files...

SELECT THE TIFF IMAGE OF THE GEL FROM THE SOURCE FOLDER AND CLICK "OPEN"

Nome file: DPCF0801geI52

Bitmap files

Apri Annulla

Name	Type
1	PFGE_Xbal Fingerprint types

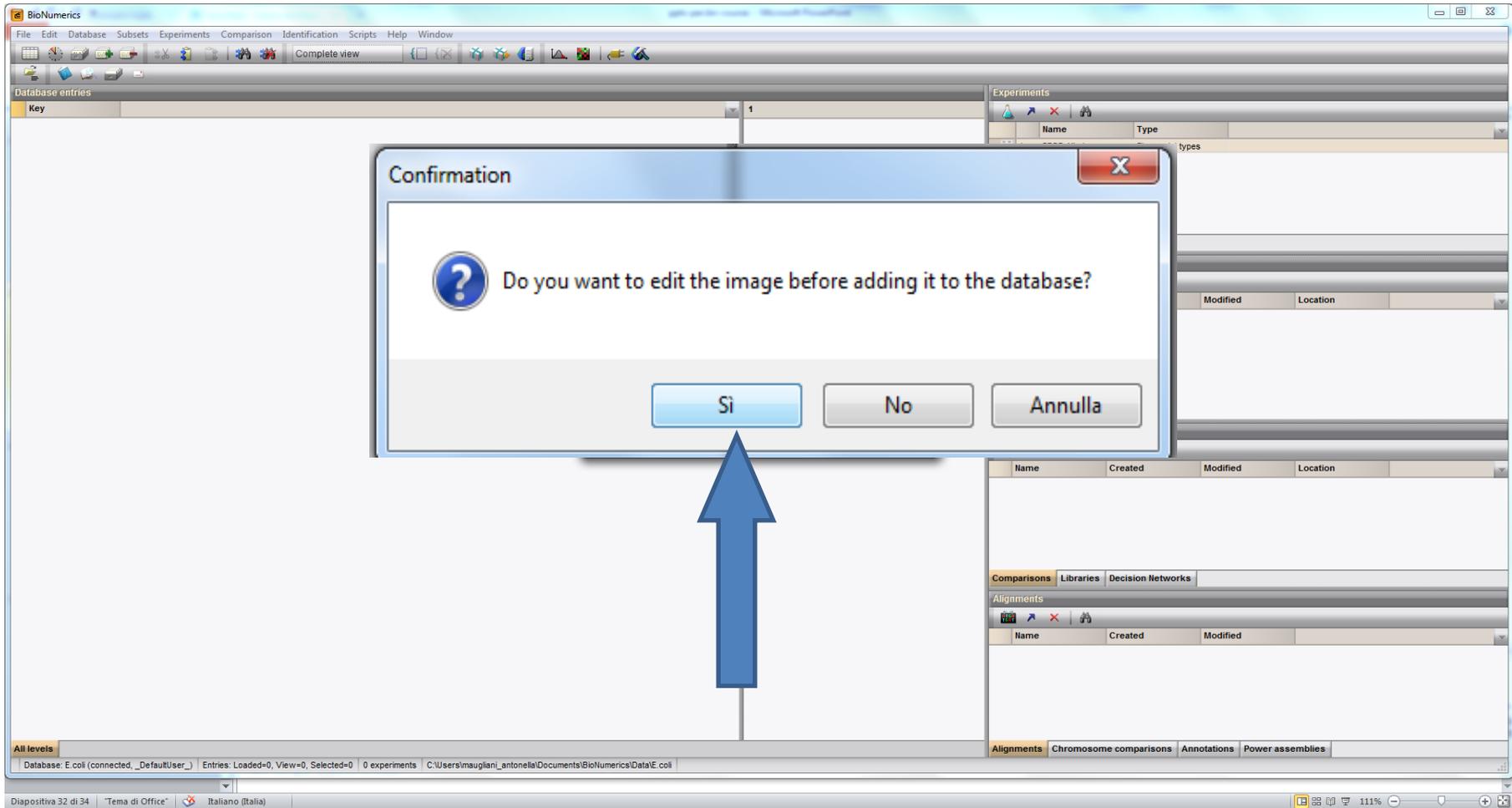
Name	Created	Modified	Location
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Name	Created	Modified	Location
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Name	Created	Modified
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The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 3: Importing TIFF files



The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 3: Importing TIFF files

**ADD IMAGE TO
DATABASE**

The screenshot displays the BioNumerics software interface. The main window is titled 'Fingerprint image import' and features a menu bar with 'File', 'Edit', 'Image', 'Crop', and 'Window'. The 'File' menu is open, showing 'Add image to database...' and 'Exit'. A blue arrow points from the 'ADD IMAGE TO DATABASE' text box to the 'Add image to database...' menu item. The central area shows a grayscale fingerprint image with a grid overlay. The right sidebar contains several panels: 'Name' and 'Type' (with one entry: '1 PFGE_Xbal Fingerprint types'), 'Experiments' and 'Entry relations', 'Files' (with columns: Name, Created, Modified, Location), 'Comparisons' (with columns: Name, Created, Modified, Location), 'Comparisons Libraries Decision Networks', 'Alignments' (with columns: Name, Created, Modified), and 'Alignments Chromosome comparisons Annotations Power assemblies'. The status bar at the bottom indicates 'Database: E.coli (connected, _DefaultUser_) Entries: Loaded=0, View=0, Selected=0 0 experiments C:\Users\maugliani_antone\Documents\BioNumerics\Data\E.coli'.

The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

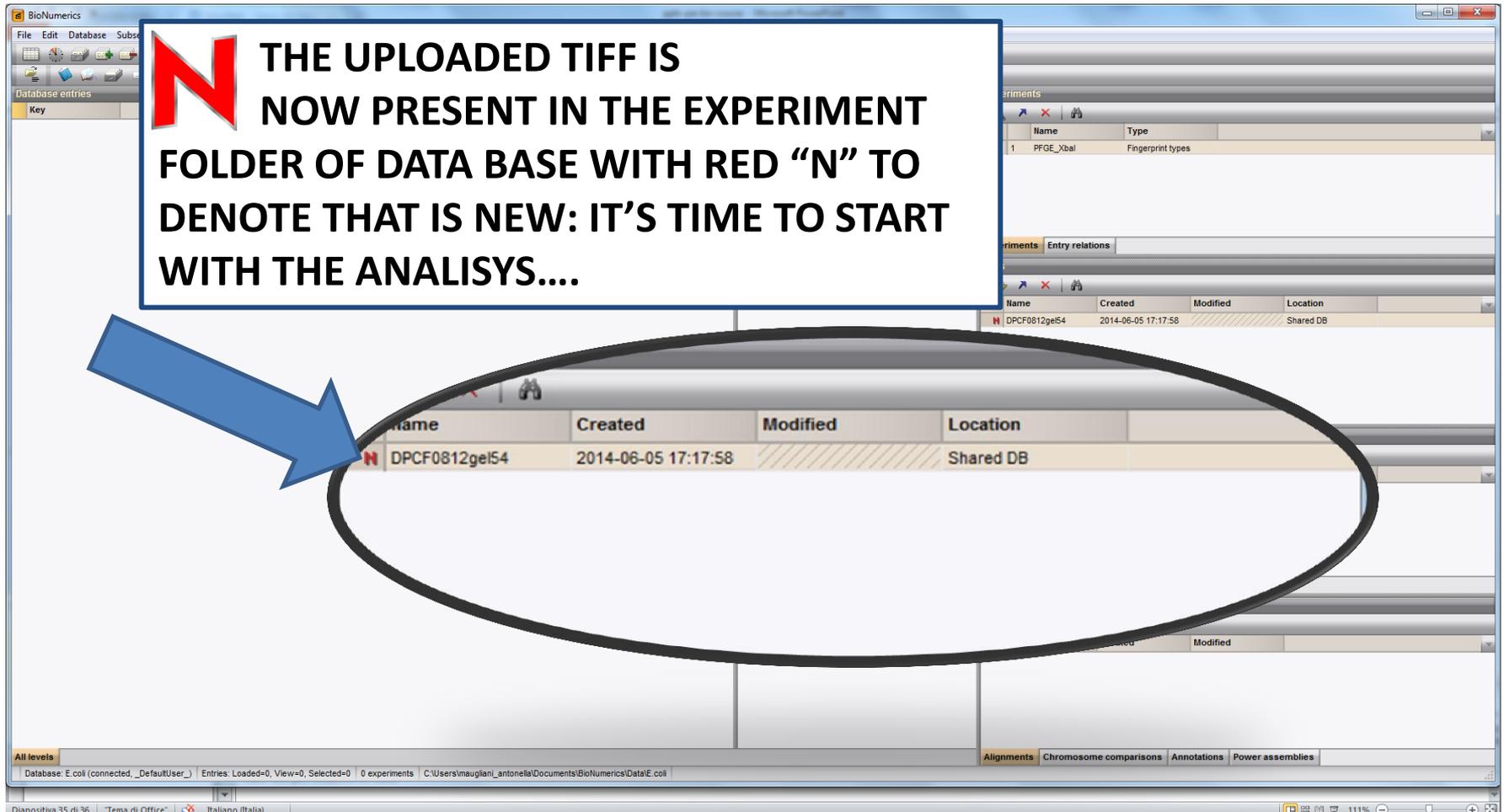
Step 3: Importing TIFF files

The screenshot displays the BioNumerics software interface. On the left, a 'Fingerprint image import' window shows a gel electrophoresis image. In the center, a dialog box titled 'Add image to the database' is open, prompting the user to 'Enter the name of the image:'. The text 'DPCF0812gel54' is entered in the input field. A large blue arrow points from a text box at the bottom to the input field. The background shows the main software window with various toolbars and a sidebar.

Name the TIFF files in order to recognize the run... and click OK

The BioNumerics Software: database creation, experiment type, import of TIFF files, and setting up experiments

Step 3: Importing TIFF files



N THE UPLOADED TIFF IS NOW PRESENT IN THE EXPERIMENT FOLDER OF DATA BASE WITH RED "N" TO DENOTE THAT IS NEW: IT'S TIME TO START WITH THE ANALISYS....

The screenshot shows the BioNumerics software interface. A table in the center displays the following data:

Name	Created	Modified	Location
N DPCF0812geI54	2014-06-05 17:17:58		Shared DB

A blue arrow points to the red 'N' icon next to the entry 'DPCF0812geI54'. A large black oval highlights the entire row of this entry. The software interface also shows a menu bar (File, Edit, Database, Sub), a toolbar, and a status bar at the bottom.

THANK YOU VERY MUCH FOR YOUR ATTENTION

