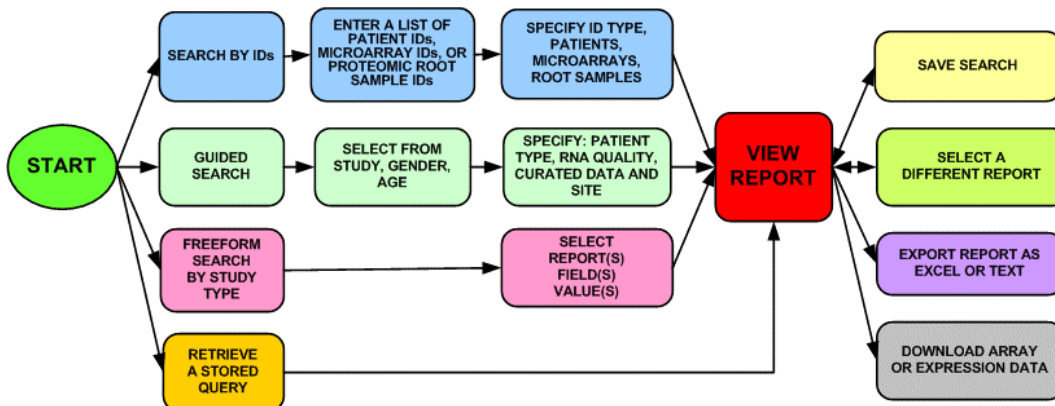


How to Use the TRDB

The TRDB is a powerful web-based application for data queries and reports. TRDB provides extensive Help and documentation capabilities. Data within the TRDB are segregated by subject type: trauma or burn patients, or healthy control subjects. Retrieving the data requires only a few easy steps:

1. Select a search method: search by entering patient or other IDs, by performing a guided or freeform search, or retrieve a stored query.
2. View the results.
3. Save a search.
4. Select a different report to view.
5. Choose to export results to Excel or text format, or to download Microarray Chip and Metadata files.



Searching for Subjects and/or Gene Expression Data

The TRDB Web Interface provides 3 interfaces for choosing subjects and data.

- Use-selected specific IDs: Microarray ID or Proteomics Root Sample ID
- Guided Search makes it easy to choose items based on major categories:
 - Study type - Burn, Trauma, or Controls
 - Sex - Male, Female, or Both
 - Age range
 - Patient study type - Epidemiological, With Samples, or Both
 - Microarrays - Has gene expression data or not, or both
 - Patients having chosen microarray quality scores
 - Deidentified clinical site
- Freeform Search
 - Select study type - Burn, Trauma, or Control
 - Then select up to 10 specific report and field values of interest. The value may be: equal, not equal, in a range, or not in a range.
 - If the microarray report is chosen, then the user can choose to select corresponding patients or the microarrays.

Searches can be saved for use for this session or another session. Saved searches can be deemed private or for others to use. Saved searches can be given descriptive names and textual comments.

Downloadable Gene Expression Data

Gene expression data can be downloaded in a variety of ways:

- Affymetrix GCOS CEL and TXT files can be downloaded
- dChip DCP files can be downloaded
- Affymetrix GCOS expression levels can be downloaded.
- For gene expression data derived from trauma patients, a dChip model was created from 166 patients and arrays that met specific requirements (appropriate RNA quality, not an outlier, a sample in first 24 hours, and at least 2 samples). Using this dChip mode, dChip was used to derive expression levels for all arrays from trauma patients. The dChip expression levels can be downloaded.
- For gene expression data derived from burn patients, since patient accrual was on going, a dChip model was created from about 100 patients available at the time the model was created. Using this dChip mode, dChip was used to derive expression levels for all arrays from burn patients. The dChip expression levels can be downloaded.
- For gene expression data derived from control subjects, expression levels were derived using both the trauma model and burn model. The choice of burn or trauma model dChip expression levels can be downloaded.
- When selecting array data, a TRDB user can choose the RNA quality, tissues of interest, and dChip outlier confidence level.
- For dChip data, whether or not to include present/absent indicator and standard error.
- Once array data is selected (either GCOS or dChip), the TRDB user can choose to only display expression values for selected probe sets or genes. When choosing the probe sets or genes, nomenclature from one of the following sources can be used:
 - Affymetrix Probe Set ID(s)
 - Representative Public ID(s)
 - UniGene ID(s)
 - Gene Symbol ID(s)
 - Ensembl ID(s)
 - SwissProt ID(s)
 - RefSeq Transcript ID(s):
 - Pathway ID(s):
 - Or no restriction
- Download data in a variety of formats suitable for processing using MS Excel or SAS.
- Several meta data files are included with each download: query used, patient to microarray correspondence, and others.

TRDB Help Capabilities

The TRDB provides several methods for obtaining help.

- When a report is displayed, the user can put the cursor over a column header and the field description is displayed.
- On the top of each page is a Help button that brings the user to information about that page as well as other overall information such as the annotated Case Report Forms used for the clinical information. The following help information is also available from this help page.
- When a report is displayed, the user can click on a column header and a window displays all the field header descriptions for that report.
- If the user wants to know which report and which field may have information of interest, the user can type a keyword, and TRDB will display all reports and fields whose descriptions contain that keyword.

Reports

TRDB reports have been developed in collaboration with our Participating Investigators analyzing the study data, and through user feedback from our Consortium Members. There are several categories of built-in reports in the TRDB application.

In general, time-independent reports contain data that are not collected over time, whereas the time-varying reports describe events measured from time of injury.

On the pages below you will find a detailed description of each report by study type.

Trauma Patient Reports

Time-independent reports.....page 4

Time-varying reports..... page 5

Gene expression and proteomics data reports..... page 6

Burn Patient Reports

Time-independent reports.....page 7

Time-varying reports.....page 8-9

Gene expression and proteomics data reports..... page 10

Healthy Control Subjects Reports

Time-independent reports.....page 11

Time-varying reports.....page 11

Gene expression and proteomics data reports.....page 12

Trauma Study Time-Independent Reports	
Trauma Report Name	Trauma Report Description
Patient Summary (default report)	Report contains basic demographic information (e.g., sex, age, race, ethnicity), injury information (e.g., AIS and clinical summary information (e.g., MOF, ICU days, hospital days)
Patient Clinical Data Report	Report includes collected and derived single-value information (>125 items: demographics, injury, clinical, ICU and MOF data). This extensive report is intended primarily for downloading and local statistical analysis.
Comorbidities and Admit Meds	Report describes comorbidities (>60) and preadmission medications.
Calculated Fields	Report contains a variety of fields calculated from demographic and clinical data, and is intended primarily for downloading and local statistical analysis. Fields include: MOD onset day, max Denver score and day, max cardiac index, among others
Other Comorbidities, Other Meds and Injury Scores	Report contains a concatenation of results from textual input on the Case Report Forms: Other Comorbidities, Other Medications and Traumatic Injury with AIS Codes and AIS Severities.

Trauma Study Time-Varying Reports	
Trauma Report Name	Trauma Report Description
Time Course Outcomes – Non-infectious Complications	Table shows list of non-infectious complications and the days since injury for the event. Examples: cardiac arrest and pulmonary embolus
Time Course Outcomes – Surgical Site Infections	Table shows list of infection body region, type, organism, and the days since injury of the event. Examples: [neck, superficial incisional, E. coli], [chest (lung), deep incisional, Proteus]
Time Course Outcomes – Nosocomial Infections	Table shows list of nosocomial infections site, organism, pneumonia diagnosis, and days since injury of onset of infection. Examples: [pneumonia, h. influenzae, positive sputum gram stain], [sinusitis, Aspergillus]
Time Course Major Procedures	Table shows list of major procedures, other procedure (with laparotomy only) and days since injury for the procedure. Examples: Peripheral vascular, Spine Fixation
Time Course Resuscitation - Endpoints and Interventions	Table shows variety of measures taken at time intervals of 0-6, 7-12, 13-18, 19-24, 24-48 hours. Examples of measures: highest glucose, crystalloids (mls), highest dopamine (ug/kg/min), highest cvp
Time Course Multiple Organ Failure	Table shows measures taken between days 2-28. Examples of measures: highest serum creatinine, insulin requirement, systolic & diastolic blood pressure, therapeutic heparin (yes/no), motor score (gcs)
Blood Sample Information	Table shows WBC count, Neutrophil count, Lymphocyte count, Monocyte count, Basophil count, Eosinophil count and Band count for blood samples.
Time Varying - Calculated Data	Selected clinical and calculated components recorded at different time intervals. Examples: Marshall MOF score, Denver MOF components, on ventilator.

Trauma Study Gene Expression and Proteomics Data Reports (blood samples only)	
Burn Report Name	Burn Report Description
Microarray Summary Report	Microarray-related information such as available chip identifiers, hours since injury, tissue sample types, Microarray IDs, and RNA quality score. Based on the summary information provided in this report, a TRDB user can choose to download the associated microarray files in addition to the summary data.
Proteomics (Panel A): Monocytes	Monocyte Panel A: Surface expression measurements in Isotype Control Value, % positive in CD-33 positive cells, % positive in CD-36 positive cells, Net MFI, MCI for analytes: TLR4, TLR2, CD64 & TNFR II. Intra-cellular Cytokines in Unstimulated and SEB+LPS Stimulated expression measurements in Isotype Control Value, % positive in CD-33 positive cells, % positive in CD-36 cells, Net MFI, MCI for analytes: IL-10, TNF-Alpha, IL-6 and IL-12. Analyte and analysis status values are also included.
Proteomics (Panel A): T-Cells	T-Cell Panel A: Surface expression measurements: Isotype Control Value, % positive in CD-2 positive cells, Net MFI, MCI for the following analytes: CC-R5, CD-28, CD-152, CC-R3, CC-R2, CXC-R3, CC-R4, CD-4, CD-25 and CD-4+CD-25+. Intra-cellular Cytokine and PMA+ Ionomycin Stimulated: Isotype Control Value, % positive in CD-2 positive cells, Net MFI, MCI for the following analytes: IL-2, IFNg, IL-5, GM-CSF, IL-10 and IL-4. Analyte and analysis status values are also included.
Proteomics (Panel B): Monocytes	Monocyte Panel B measures: %-Gate set up for Isotype control, % positive in CD36 positive cells, Net MFI (Mean Fluorescence Intensity), MCI (Mean Cell Intensity) for the following analytes CD64, TLR4, TLR2, CD86, CD40, PD-L1, ILT2, B7-H4, ILT3, IL-6(IC), TGFbeta (IC) and TNFalpha (IC). Analyte and analysis status values are also included.
Proteomics (Panel B): T-Cells	T-Cell Panel B measures: %-Gate set up for Isotype control, % positive in CD2 positive cells, Net MFI (Mean Fluorescence Intensity), MCI (Mean Cell Intensity) for the following analytes: Foxp3(IC), CD25, CD4, CD152(IC), CD4+CD25+, CD4+CD25+Foxp3+, CD4+CD25+CD152+, CD25+CD152+Foxp3+, CD86, PD1, BTLA, CD28, Act.Caspase3(IC), TWEAK-R, FasL, CCR5, CCR4, CCR7, CXCR3, CD62-L, CCR8 and CD27. Analyte and analysis status values are also included.
Proteomics Summary	Table shows essential demographic information, viability and cell quantity for Monocyte and T cell analysis panels.
Proteomics: Plasma	Table shows immunoassay data of circulating cytokines measured from plasma (includes hours from injury).

Burn Study Time-Independent Reports	
Burn Report Name	Burn Report Description
Patient Summary [Default Report]	Report contains basic demographic information (e.g., sex, age, race, ethnicity, and a limited number of key clinical variables. These include base deficit, % TBSA and outcome.
Patient Clinical Data Report	Report includes over 60 clinical fields. This extensive report is intended primarily for downloading and local statistical analysis.
Comorbidities, Admit Meds and Lund Browder Scores	Report describes comorbidities (>100), preadmission medications, and Lund Browder-Berkow calculation results for % TBSA.
Calculated Fields	Report contains a variety of fields calculated from demographic and clinical data, and is intended primarily for local statistical analysis. Fields include: # transfusions, # ARDS events, # renal events, max Denver score, # shock events, # VAC events, Baux score, Apache score, among others
Other Comorbidities, Other Meds and Injury Scores	Report contains a concatenation of results from textual input on Case Report Forms: Other Comorbidities, Other Medications and Injury Type with AIS Codes and AIS Severities.

Burn Study Time-Varying Reports	
Burn Report Name	Burn Report Description
Blood Sample Information	Table shows WBC count, Neutrophil count, Lymphocyte count, Monocyte count, Basophil count, Eosinophil count and Band count for blood samples.
Blood Transfusions	Table shows type of transfused product, quantity (mls), and days since injury. Examples: platelets, cell savers, packed RBC
Burn Operations	Table shows MOF time point number, OR event, body region, extent of homograft only coverage (cm ²), extent of coverage of auto with homo overlay (cm ²), skin substitute type, body region, and days since injury. Examples: [grafting, right upper arm], [flap/recon, posterior trunk]
Burn Wound Infections	Table shows body region, infectious organism, quantitative culture results, and days since injury. Examples: [head and neck, aspergillus, 10 ^{^2}], [anterior torso, stenotrophomonas, <10]
Hospital Readmissions	Table shows re-admission reasons, disposition location at discharge, and days since injury for the readmission and discharge. Examples of readmission: [infectious complication, home], [reconstruction, nursing home]
ICU History	Table shows ICU admissions, reason for admissions, and days since injury for the ICU admission and discharge. Examples of admission reason: postoperative-planned, deterioration on ward
In-Patient Medications	Table shows start and stop intervals of in-patient medications. Examples: oxandrolone, steroids
Intercurrent Events not Requiring Readmission	Table shows events occurring outside the hospital (in between hospital admissions) and days since injury. Examples: graft loss, wound infection
Multiple Organ Failure	Table shows measures taken on intervals 0-24 hours, 24-48 hours, and days 2-28. Examples of measures: highest serum creatinine, pre-operative resting heart rate, dopamine requirement (ug/kg/min)
Nosocomial Infections Exclusive of Burn Wound	Table shows nosocomial infection site, infection organism, method of pneumonia diagnosis, and days since injury and study start. Examples: [pneumonia, strp. Viridans, positive sputum gram stain], [cholecystitis, candida species]
Other Events (Procedures and Complications)	Table shows event and, if amputation, body region, and days since injury. Examples: laparotomy, pneumothorax, [amputations, digits]
Pediatric Burn Operations	Table shows MOF time point number, OR event, days since burn, since study start, %TBSA for burn, %TBSA areas for skin substitutes and grafts
Resuscitation - Endpoints and Interventions	Table shows measures for 0-23 and 24-48 hours since injury: worst base deficit, crystalloids (mls), hetastarch

Burn Study Time-Varying Reports	
Burn Report Name	Burn Report Description
	(mls) (Hespan), Albumin 5% (mls), Albumin 25% (mls), total 24 hour urine output (mls)
Scar Assessment	Table shows scar location, pigmentation, vascularity, pliability, height, and days since injury and study start. Examples: [head, hypopigmentation, red, firm, <2mm], [right leg, hyperpigmentation, pink, banding, >5mm]
Time Varying - Calculated Data	Selected clinical and calculated components recorded at specific events or between events such as OR.

Burn Study Gene Expression and Proteomics Data Reports ((blood, muscle, fat, and skin)
 Note: For many of the tissues, histology images are available for download.

Burn Report Name	Burn Report Description
Microarray Summary Report	Microarray-related information such as available chip identifiers, hours since injury, tissue sample types, Microarray IDs, and RNA quality score. Based on the summary information provided in this report, a TRDB user can choose to download the associated microarray files in addition to the summary data.
Proteomics (Panel A): Monocytes	Monocyte Panel A: Surface expression measurements in Isotype Control Value, % positive in CD-33 positive cells, % positive in CD-36 positive cells, Net MFI, MCI for analytes: TLR4, TLR2, CD64 & TNFR II. Intra-cellular Cytokines in Unstimulated & SEB+LPS Stimulated expression measurements in Isotype Control Value, % positive in CD-33 positive cells, % positive in CD-36 cells, Net MFI, MCI for analytes: IL-10, TNF-Alpha, IL-6 and IL-12. Analyte and analysis status values are also included.
Proteomics (Panel A): T-Cells	T-Cell Panel A: Surface expression measurements: Isotype Control Value, % positive in CD-2 positive cells, Net MFI, MCI for the following analytes: CC-R5, CD-28, CD-152, CC-R3, CC-R2, CXC-R3, CC-R4, CD-4, CD-25 and CD-4+CD-25+. Intra-cellular Cytokine and PMA+ Ionomycin Stimulated: Isotype Control Value, % positive in CD-2 positive cells, Net MFI, MCI for the following analytes: IL-2, IFNg, IL-5, GM-CSF, IL-10 and IL-4. Analyte and analysis status values are also included.
Proteomics (Panel B): Monocytes	Monocyte Panel B measures: %-Gate set up for Isotype control, % positive in CD36 positive cells, Net MFI (Mean Fluorescence Intensity), MCI (Mean Cell Intensity) for the following analytes CD64, TLR4, TLR2, CD86, CD40, PD-L1, ILT2, B7-H4, ILT3, IL-6(IC), TGFbeta (IC) and TNFalpha (IC). Analyte and analysis status values are also included.
Proteomics (Panel B): T-Cells	T-Cell Panel B measures: %-Gate set up for Isotype control, % positive in CD2 positive cells, Net MFI (Mean Fluorescence Intensity), MCI (Mean Cell Intensity) for the following analytes: Foxp3(IC), CD25, CD4, CD152(IC), CD4+CD25+, CD4+CD25+Foxp3+, CD4+CD25+CD152+, CD25+CD152+Foxp3+, CD86, PD1, BTLA, CD28, Act.Caspase3(IC), TWEAK-R, FasL, CCR5, CCR4, CCR7, CXCR3, CD62-L, CCR8 and CD27. Analyte and analysis status values are also included.
Proteomics Summary	Table shows essential demographic information, viability and cell quantity for Monocyte and T cell analysis panels.
Proteomics: Plasma	Table shows immunoassay data of circulating cytokines measured from plasma (includes hours from injury).

Control Study Time-Independent Reports	
Note: Data varies depending on the local IRB-approved protocol	
Control Report Name	Control Report Description
Control Demographics (default report)	Report provides basic demographic information about control subjects such as age, sex, race and basic physiologic data.
Comorbidities	Report contains comorbidities and preadmission medications.
Demographics (Other)	Report contains a concatenation of results from textual input on Case Report Forms: Other Comorbidities and Other Medications.

Control Study Time-Varying Reports	
Note: Occasionally, multiple samples were taken from the same control subject especially from tissues (muscle, fat, or skin) and these samples might have been taken at a different time. Time is measured from when the subject was enrolled in the study.	
Control Report Name	Control Report Description
Sample Information	Table shows WBC count, Neutrophil count, Lymphocyte count, Monocyte count, Basophil count, Eosinophil count and Band count for samples from the selected subject.

Control Study Gene Expression and Proteomics Data Reports

Note: Some of the Control Study subjects are patients from other procedures (e.g., elective plastic surgery, hernia, among others) while others are former burn patients. When tissues were taken from former burn patients, the record is identified in the Microarray Summary Report along with the time since injury. For many of the tissues, histology images are available for download. Gene expression data can be from blood, muscle, fat, or skin.

Control Report Name	Control Report Description
Microarray Summary Report	Microarray-related information such as available chip identifiers, hours since injury, tissue sample types, Microarray IDs, and RNA quality score. Based on the summary information provided in this report, a TRDB user can choose to download the associated microarray files themselves in addition to the summary data.
Proteomics (Panel A): Monocytes	Monocyte Panel A: Surface expression measurements in Isotype Control Value, % positive in CD-33 positive cells, % positive in CD-36 positive cells, Net MFI, MCI for analytes: TLR4, TLR2, CD64 & TNFR II. Intra-cellular Cytokines in Unstimulated & SEB+LPS Stimulated expression measurements in Isotype Control Value, % positive in CD-33 positive cells, % positive in CD-36 cells, Net MFI, MCI for analytes: IL-10, TNF-Alpha, IL-6 and IL-12. Analyte and analysis status values are also included.
Proteomics (Panel A): T-Cells	T-Cell Panel A: Surface expression measurements: Isotype Control Value, % positive in CD-2 positive cells, Net MFI, MCI for the following analytes: CC-R5, CD-28, CD-152, CC-R3, CC-R2, CXC-R3, CC-R4, CD-4, CD-25 and CD-4+CD-25+. Intra-cellular Cytokine and PMA+ Ionomycin Stimulated: Isotype Control Value, % positive in CD-2 positive cells, Net MFI, MCI for the following analytes: IL-2, IFNg, IL-5, GM-CSF, IL-10 and IL-4. Analyte and analysis status values are also included.
Proteomics (Panel B): Monocytes	Monocyte Panel B measures: %-Gate set up for Isotype control, % positive in CD36 positive cells, Net MFI (Mean Fluorescence Intensity), MCI (Mean Cell Intensity) for the following analytes CD64, TLR4, TLR2, CD86, CD40, PD-L1, ILT2, B7-H4, ILT3, IL-6(IC), TGFbeta (IC) and TNFalpha (IC). Analyte and analysis status values are also included.
Proteomics (Panel B): T-Cells	T-Cell Panel B measures: %-Gate set up for Isotype control, % positive in CD2 positive cells, Net MFI (Mean Fluorescence Intensity), MCI (Mean Cell Intensity) for the following analytes: Foxp3(IC), CD25, CD4, CD152(IC), CD4+CD25+, CD4+CD25+Foxp3+, CD4+CD25+CD152+, CD25+CD152+Foxp3+, CD86, PD1, BTLA, CD28, Act.Caspase3(IC), TWEAK-R, FasL, CCR5, CCR4, CCR7, CXCR3, CD62-L, CCR8 and CD27. Analyte and analysis status values are also included.
Proteomics Summary	Table shows essential demographic information, viability and cell quantity for Monocyte and T cell analysis panels.
Proteomics: Plasma	Table shows immunoassay data of circulating cytokines measured from plasma (includes hours from injury).