

# Data Publication to Interferome (MIMR/Interferome) Solution User Guide

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## Getting Started

### Where Is It?

<http://www.interferome.org/>

### What is it?

The innate immune system is a highly conserved, first line of host defence against infections and other disease stimuli. It initiates inflammatory responses and is important in surveillance of developing cancers. As a result of recent discoveries and an increased understanding of the components of this response, we are now able to better determine its role in diseases, assess human susceptibilities to disease and target therapeutics to this system. A key component of the innate response is the production of hormone-like proteins called interferons (IFNs). These proteins induce several thousand genes which are responsible for constituting each of the many biological effects of interferons – they inhibit viral replication, prevent cell growth and activate cells of the immune response.

The Interferome is a database of IFN regulated genes published in 2009 (Interferome.org; Samarajiwa et al., Nucleic Acids Res. 37, 852). This represents the initial stages in capture and integration of IFN treated microarray datasets, incorporating over 40 published and internally generated microarray datasets. This approach enables identification of interferon regulated gene sets in many biologically diverse high throughput microarray experiments.

## Register as a New User

1.



The screenshot shows the homepage of the Interferome database. At the top, there is a navigation bar with links for 'home', 'experiments', 'search', 'tissue expression', 'regulatory analysis', 'sequence download', 'database statistics', 'references', 'how to cite', 'cited by', 'help', and 'contact us'. In the top right corner, there are 'Register' and 'Login' buttons. Below the navigation bar, the main content area has a blue header with the text 'THE DATABASE OF IFN REGULATED GENES'. The page features a large image of microarray slides. On the left, there is a sidebar with sections for 'INTRODUCTION', 'DEFINITIONS', and 'DATABASE SCOPE'. A note at the bottom states that the site is provided 'as is' by Monash University. At the bottom of the page, there are logos for MONASH University, MONASH University e-Research Centre, and ANDS (Australian National Data Service). There is also a logo for the Monash Institute of Medical Research.

Click on the 'Register' link in the top right corner of the Home Page.

2.

The screenshot shows the homepage of the Interferome website. At the top, there is a navigation bar with links for "home", "experiments", "search", "tissue expression", "regulatory analysis", "sequence download", "database statistics", "references", "how to cite", "cited by", "help", and "contact us". On the right side of the header, there are "Register" and "Login" buttons. Below the header, a breadcrumb navigation shows "User > Registration Options". A main content area contains the text "Please choose one of the following registration options:" followed by two buttons: "Monash Registration" and "Self-Registration". At the bottom of the page, there is a footer with logos for MONASH University, MONASH University e-Research Centre, and ANDS (Australian National Data Service). There is also a link to the MONASH INSTITUTE OF MEDICAL RESEARCH. A small note in the footer states: "This site is provided 'as is' by Monash University for use by Monash researchers and their research collaborators at other institutions. Use by Monash's research collaborators is encouraged and welcomed. Use of this site by all users is subject to Monash University's normal Staff Acceptable Use Policy for IT Services (AUP) available at: [www.policy.monash.edu/policy-bank/management/its/its-use-policy-staff-and-authorised.html](http://www.policy.monash.edu/policy-bank/management/its/its-use-policy-staff-and-authorised.html). The Monash team leader of each research group is responsible for ensuring that the AUP is adhered to by all members of the group. Publication of information, information access controls, group membership controls are the responsibility of the team leader of each worksite. Monash University does not warrant the accuracy of the information provided by the service, nor the fitness for purpose of the service for your intended application. Data is stored and backed-up on the University's LaRDS research data store. Services are provided to 3rd parties on an 'all care no responsibility' basis. Use of this site indicates your acceptance of these terms and conditions."

Select either "Monash User Registration" if you have a Monash Authcate, or "User Self-Registration" if you do not have a Monash Authcate.

3.

Monash Authcate ID:  
\* (Your Monash Authcate ID)

Password:  
\* (Your Monash Authcate password)

Word Verification:  
\* (Type the characters you see in the picture below)

 can't read this?

If you already have an account, please [Sign in now](#)

Register Clear

This site is provided 'as is' by Monash University for use by Monash researchers and their research collaborators at other institutions. Use by Monash's research collaborators is encouraged and welcomed. Use of this site by all users is subject to Monash University's normal Staff Acceptable Use Policy for IT Services (AUP) available at: [www.policy.monash.edu/policy-bank/management/its/its-use-policy-staff-and-authorised.html](http://www.policy.monash.edu/policy-bank/management/its/its-use-policy-staff-and-authorised.html). The Monash team leader of each research group is responsible for ensuring that the AUP is adhered to by all members of the group. Publication of information, information access controls, group membership controls are the responsibility of the team leader of each worksite. Monash University does not warrant the accuracy of the information provided by the service, nor the fitness for purpose of the service for your intended application. Data is stored and backed-up on the University's LaRDS research data store. Services are provided to 3rd parties on an 'all care no responsibility' basis. Use of this site indicates your acceptance of these terms and conditions.

MONASH University MONASH University e-Research Centre ands MONASH INSTITUTE OF MEDICAL RESEARCH

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Complete the form for registration details.

If you have selected to register with a Monash Authcate this will automatically use the details linked to your Authcate to register. You will simply need to provide your Authcate and password.  
In each case word verification is required.

This is a security measure.

4.

The screenshot shows the Interferome website's self-registration page. At the top, there is a navigation bar with links for home, experiments, search, tissue expression, regulatory analysis, sequence download, database statistics, references, how to cite, cited by, help, and contact us. On the right side of the header, there are 'Register' and 'Login' buttons. Below the header, the URL 'User > Registration Options > Self-Registration' is visible. The main form contains fields for First Name, Last Name, E-mail, Password, Organization, Word Verification, and a CAPTCHA field containing 'mkyrig'. Below the form, a message encourages users to accept terms and conditions. At the bottom, there are logos for MONASH University, MONASH University e-Research Centre, and ANDS (Australian National Data Service), along with the MONASH INSTITUTE OF MEDICAL RESEARCH logo. Copyright information and a version note ('v2.0 beta') are also present at the very bottom.

If you have selected to register via the Self-Registration link you will be required to enter details about yourself such as name, email and organisation.

5.

The screenshot shows the Interferome website homepage with a blue decorative header featuring snowflake-like patterns. The main menu includes links for Register and Login, and categories like home, experiments, search, tissue expression, regulatory analysis, sequence download, database statistics, references, how to cite, cited by, help, and contact us. Below the menu, a breadcrumb navigation shows User > Registration Options > Monash Registration. The main content area displays a message: "Dear Kim Linton. Thank you for the registration. Your account is not activated yet. Administrator will activate your account and send a notification email to you shortly." At the bottom of the page, a legal notice states: "This site is provided 'as is' by Monash University for use by Monash researchers and their research collaborators at other institutions. Use by Monash's research collaborators is encouraged and welcomed. Use of this site by all users is subject to Monash University's normal Staff Acceptable Use Policy for IT Services (AUP) available at [www.policy.monash.edu/policy-bank/management/its/its-use-policy-staff-and-authorised.html](#). The Monash team leader of each research group is responsible for ensuring that the AUP is adhered to by all members of the group. Publication of information, information access controls, group membership controls are the responsibility of the team leader of each worksite. Monash University does not warrant the accuracy of the information provided by the service, nor the fitness for purpose of the service for your intended application. Data is stored and backed-up on the University's LaRDS research data store. Services are provided to 3rd parties on an 'all care no responsibility' basis. Use of this site indicates your acceptance of these terms and conditions."

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ands  
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All new registration requests will be sent to the system administrator for review and activation. This is a manual process. You will receive an email when your account has been activated and is ready for use.

6.

You can try 3 times

User ID:  
\* (Your Monash Authcate ID or E-mail address)

Password:  
\* (Your password)

Word Verification:  
\* (Type the characters you see in the picture below)

can't read this?

Login    Reset

Don't have an Account, [Register an account now](#)  
[Forgot your password?](#)

This site is provided 'as is' by Monash University for use by Monash researchers and their research collaborators at other institutions. Use by Monash's research collaborators is encouraged and welcomed. Use of this site by all users is subject to Monash University's normal Staff Acceptable Use Policy for IT Services (AUP) available at: [www.policy.monash.edu/policy-bank/management/its-use-policy-staff-and-authorised.html](http://www.policy.monash.edu/policy-bank/management/its-use-policy-staff-and-authorised.html). The Monash team leader of each research group is responsible for ensuring that the AUP is adhered to by all members of the group. Publication of information, information access controls, group membership controls are the responsibility of the team leader of each worksite. Monash University does not warrant the accuracy of the information provided by the service, nor the fitness for purpose of the service for your intended application. Data is stored and backed-up on the University's LaRDS research data store. Services are provided to 3rd parties on an 'all care no responsibility' basis. Use of this site indicates your acceptance of these terms and conditions.

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Login to the Interferome Solution using your registered and activated credentials using the link in the top right corner of the Home page.

7.



Admin Kim Linton



- my home
- my experiments
- import experiments
- experiments
- import annotations
- events
- users
- logout

Once successfully logged in, the right tool bar will be available containing:

- My home
- My experiments
- Import experiments (from BASE only)
- Experiments
- Import annotations (admin only)
- Events
- Users
- Logout

8.



The Top Tool Bar will have the following options:

- Home
- My Home
- Experiments
- Search
- Tissue Expression (For future release. Still available in Version 1 Interferome)
- Regulatory Analysis For future release. Still available in Version 1 Interferome)
- Sequence Download For future release. Still available in Version 1 Interferome)
- Database Statistics (future release)
- Citation
- Help
- Contact Us

## Experiments

9.

The screenshot shows the 'Experiments' page of the Interferome website. At the top, there is a navigation bar with links for 'home', 'my home', 'experiments', 'search', 'tissue expression', 'regulatory analysis', 'sequence download', 'database statistics', 'references', 'how to cite', 'cited by', 'help', and 'contact us'. Below the navigation bar, the page title 'Experiment > Experiments' is displayed. The main content area shows a summary of 6 experiments:

- E-GEOID-1740**: Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines. Imported by Irina Rusinova, Imported Date: 29-11-2011 at 11:57 AM, Modified by Irina Rusinova, Modified date: 29-11-2011 at 11:57 AM. Approved: true.
- E-GEOID-3203**: Gene expression from mouse lymph node B cells purified by flow cytometric sorting using single channel oligonucleotide microarrays. There were selected 2 groups from publication: 1) wild type uninfected mice (control group), 2) cells stimulated with IFN- $\beta$  in vitro for 17 h. Each group contained 4 biological replicates obtained from independent experiments. There were 8 total samples and each was measured on a separate array. Imported by Irina Rusinova, Imported Date: 03-10-2011 at 04:40 PM, Modified by Irina Rusinova, Modified date: 03-10-2011 at 04:40 PM. Approved: true.
- E-GEOID-3400**: Fibroblasts induced to an antiviral state by interferon-beta. Analysis of wildtype embryo fibroblasts (MEFs) induced to an antiviral state with interferon IFN- $\gamma$ . IFN- $\gamma$  plays a crucial role in host defense by modulating gene expression and inducing antiviral activity. Imported by Irina Rusinova, Imported Date: 08-12-2011 at 01:25 PM, Modified by Irina Rusinova, Modified date: 08-12-2011 at 01:25 PM. Approved: true.
- E-GEOID-3920**: Transcription profiling of human endothelial and fibroblast cells isolated from umbilical veins treated with interferon (IFN) alpha, beta, or gamma for 5 hours. Imported by Irina Rusinova, Imported Date: 08-12-2011 at 01:22 PM, Modified by Irina Rusinova, Modified date: 08-12-2011 at 01:22 PM. Approved: true.
- E-GEOID-5542**: Transcription profiling of human A549 cell line treated with type I and II interferons vs. controls. Imported by Irina Rusinova, Imported Date: 03-10-2011 at 04:41 PM, Modified by Irina Rusinova, Modified date: 03-10-2011 at 04:41 PM. Approved: true.
- E-GEOID-9975**: Transcription profiling of mouse NIH-3T3 cells treated with interferon alpha or gamma (GEO - GSE9975). Imported by Irina Rusinova, Imported Date: 03-10-2011 at 04:42 PM, Modified by Irina Rusinova, Modified date: 03-10-2011 at 04:42 PM. Approved: true.

Select the 'Experiments' tab in the top bar (you must be logged in).

A summary of all experiments will be displayed. This page can be:

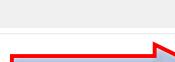
1. Modified based on how many experiments are to be displayed on the one page
2. Sorting by experiment name
3. Ordered based on ascending or descending according to Experiment Name.

You can then select the experiment you wish to see.

## Viewing data sets associated to an experiment

---

10.

Publication	
Publication Id:	<b>15467722</b>
Title:	Amplification of IFN- $\alpha$ -induced STAT1 activation and inflammatory function by Syk and ITAM-containing adaptors
Publication Date:	2004-10-03
Abstract:	A key function of interferons is priming multiple cell types for enhanced activation by cytokines and inflammatory factors, including tumor necrosis factor, bacterial lipopolysaccharide and interferons themselves. Here we show that interferon-alpha (IFN- $\alpha$ )-induced activation of the transcriptional activator STAT1 and inflammatory STAT1 target genes was enhanced in IFN- $\gamma$ -primed macrophages. Enhanced IFN- $\alpha$ signaling and proinflammatory function were dependent on the tyrosine kinase Syk and its adaptor proteins that activate Syk through immunoreceptor tyrosine activation motifs. Increased STAT1 expression contributed to enhanced IFN- $\alpha$ -induced STAT1 activation in primed macrophages. These results identify a mechanism by which crosstalk between cytokine and immune cell-specific immunoreceptor tyrosine activation motif-dependent signaling pathways regulates macrophage responses to IFN- $\alpha$ .
Experiment Design:	Human monocytes were purified from peripheral blood mononuclear cells immediately after isolation by positive selection with anti-CD14 magnetic beads, as recommended by the manufacturer (Miltenyi Biotech) and were cultured in RPMI 1640 medium (Invitrogen) supplemented with 10% human serum and 10 ng/ml of macrophage colony-stimulating factor in the presence or absence of 150 pg/ml of IFN-gamma. Macrophages from three independent blood donors were cultured for 2 d with or without 150 pg/ml of IFN-gamma and then were stimulated for 3 h with 25 ng/ml of IFN-alpha. The cRNA obtained was hybridized to U95Av2 oligonucleotide microarrays according to the instructions of the manufacturer (Affymetrix). Data were analyzed with Affymetrix Suite 5.0 and Genespring (Silicon Genetics). Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]
Experiment Type:	
Affiliations:	
Authors:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkin
Publication:	Nat Immunol 5(11):1181-9 (2004)
<a href="#">Update</a> <a href="#">Delete</a> <a href="#">Permissions</a> <a href="#">Public Registration</a>	
Datasets	
<b>A total of 2 Datasets</b>	
 <a href="#">View Datasets</a>	

[Logout](#)

Select an experiment.  
The Data Set button is located at the bottom of the screen.

11.	<p><b>A total of 2 Datasets</b></p> <p>Click the dataset name to view the dataset details</p> <table border="1"> <thead> <tr> <th>Dataset Name</th><th>Experiment Factor Value</th></tr> </thead> <tbody> <tr> <td>e-geod-1740_ABnormal_Alpha.txt</td><td>           Interferon Type: I            Interferon SubType: IFNalpha            In Vivo / In Vitro: In Vivo            Normal / Abnormal: Abnormal            Abnormal: Pretreatment            Treatment Concentration: 25.0 (ng/ml)            Treatment Time: 3.0 (hr)            Array Design: Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]            Cell: PBMC            molecule: total_RNA            Organ: Blood            Species: Homo sapiens            System: Haemopoietic/Immune            Pretreatment: primed with interferon gamma            Description: macrophages from three independent blood donors were cultured for 2 d with 150 pg/ml of IFN-gamma .macrophages from three independent blood donors were cultured for 2 d with 150 pg/ml of IFN-gamma and then were stimulated for 3 h with 25 ng/ml of IFNalpha            Comment: YT2B-3,YT2B-4,YT30-3,YT30-4,YT34-3,YT34-4            Sample Characteristic:             Interferon Type: I            Interferon SubType: IFNalpha            In Vivo / In Vitro: In Vivo            Normal / Abnormal: Normal            Treatment Concentration: 25.0 (ng/ml)            Treatment Time: 3.0 (hr)            Array Design: Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]            Cell: PBMC         </td></tr> </tbody> </table>	Dataset Name	Experiment Factor Value	e-geod-1740_ABnormal_Alpha.txt	Interferon Type: I Interferon SubType: IFNalpha In Vivo / In Vitro: In Vivo Normal / Abnormal: Abnormal Abnormal: Pretreatment Treatment Concentration: 25.0 (ng/ml) Treatment Time: 3.0 (hr) Array Design: Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2] Cell: PBMC molecule: total_RNA Organ: Blood Species: Homo sapiens System: Haemopoietic/Immune Pretreatment: primed with interferon gamma Description: macrophages from three independent blood donors were cultured for 2 d with 150 pg/ml of IFN-gamma .macrophages from three independent blood donors were cultured for 2 d with 150 pg/ml of IFN-gamma and then were stimulated for 3 h with 25 ng/ml of IFNalpha Comment: YT2B-3,YT2B-4,YT30-3,YT30-4,YT34-3,YT34-4 Sample Characteristic:  Interferon Type: I Interferon SubType: IFNalpha In Vivo / In Vitro: In Vivo Normal / Abnormal: Normal Treatment Concentration: 25.0 (ng/ml) Treatment Time: 3.0 (hr) Array Design: Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2] Cell: PBMC	The Data Set/s are then displayed on the Data Set screen
Dataset Name	Experiment Factor Value					
e-geod-1740_ABnormal_Alpha.txt	Interferon Type: I Interferon SubType: IFNalpha In Vivo / In Vitro: In Vivo Normal / Abnormal: Abnormal Abnormal: Pretreatment Treatment Concentration: 25.0 (ng/ml) Treatment Time: 3.0 (hr) Array Design: Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2] Cell: PBMC molecule: total_RNA Organ: Blood Species: Homo sapiens System: Haemopoietic/Immune Pretreatment: primed with interferon gamma Description: macrophages from three independent blood donors were cultured for 2 d with 150 pg/ml of IFN-gamma .macrophages from three independent blood donors were cultured for 2 d with 150 pg/ml of IFN-gamma and then were stimulated for 3 h with 25 ng/ml of IFNalpha Comment: YT2B-3,YT2B-4,YT30-3,YT30-4,YT34-3,YT34-4 Sample Characteristic:  Interferon Type: I Interferon SubType: IFNalpha In Vivo / In Vitro: In Vivo Normal / Abnormal: Normal Treatment Concentration: 25.0 (ng/ml) Treatment Time: 3.0 (hr) Array Design: Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2] Cell: PBMC					
<p><b>Modifying your experiments</b></p> <p>There are four ways to modify your own experiments. These are:</p> <ul style="list-style-type: none"> <li>• Updating your experiment</li> <li>• Deleting your experiment</li> <li>• Allocating permissions to an experiment</li> <li>• Public Registration to Research Data Australia (RDA)</li> </ul> <p>You will also have the option of seeing the associated data set.</p> <p><b>Updating Your Experiment</b></p>						

12.

Experiment > Experiments > E-GEO-1740

**Experiment Details**

Name:	E-GEO-1740
Base Registered Date:	2011-11-23
Base Owner:	Irina Rusinova
Description:	Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.
Approved:	true
Imported By:	Irina Rusinova
Imported Date:	2011-11-29 at 11:57 AM
Modified By:	Irina Rusinova
Modified Date:	2011-11-29 at 11:57 AM

**Publication**

Publication Id:	15467722
Title:	Amplification of IFN- $\alpha$ -induced STAT1 activation and inflammatory function by Syk and ITAM-containing adaptors
Publication Date:	2004-10-03
Abstract:	A key function of interferons is priming multiple cell types for enhanced activation by cytokines and inflammatory factors, including tumor necrosis factor, bacterial lipopolysaccharide and interferons themselves. Here we show that interferon- $\alpha$ (IFN- $\alpha$ )-induced activation of the transcriptional activator STAT1 and inflammatory STAT1 target genes was enhanced in IFN- $\gamma$ -primed macrophages. Enhanced IFN- $\alpha$ signaling and proinflammatory function were dependent on the tyrosine kinase Syk and on adaptor proteins that activate Syk through immunoreceptor tyrosine activation motifs. Increased STAT1 expression contributed to enhanced IFN- $\alpha$ -induced STAT1 activation in primed macrophages. These results identify a mechanism by which crosstalk between cytokine and immune cell-specific immunoreceptor tyrosine activation motif-dependent signaling pathways regulates macrophage responses to IFN- $\alpha$ .
Experiment Design:	Human monocytes were purified from peripheral blood mononuclear cells immediately after isolation by positive selection with anti-CD14 magnetic beads, as recommended by the manufacturer (Miltenyi Biotec) and were cultured in RPMI 1640 medium (Invitrogen) supplemented with 10% human serum and 10 ng/ml of macrophage colony-stimulating factor in the presence or absence of 150 pg/ml of IFN- $\gamma$ . Macrophages from three independent blood donors were cultured for 2 d with or without 150 pg/ml of IFN- $\gamma$ and then were stimulated for 3 h with 25 ng/ml of IFN- $\alpha$ . The cRNA obtained was hybridized to U95Av2 oligonucleotide microarrays according to the instructions of the manufacturer (Affymetrix). Data were analyzed with Affymetrix Suite 5.0 and Genespring (Silicon Genetics).
Experiment Type:	Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]
Affiliations:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Authors:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Publication:	Nat Immunol 5(11):1181-9 (2004)

Update    Delete    Permissions    Public Registration

Datasets    File    Edit    Capture    Window    Help

Select 'my experiments' in the right tool bar  
A list of your experiments will be displayed.

Select the experiment you wish to update.

The Experiment Details Screen will be displayed

Select the 'Update' button at the bottom of the screen.

13.

The screenshot shows the 'Updating Experiment' page for experiment E-GEOID-1740. The experiment details include:

- Name:** E-GEOID-1740
- Base Registered Date:** 2011-11-23
- Base Owner:** Irina Rusinova
- Description:** Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.
- Approved:** true
- Imported By:** Irina Rusinova
- Imported Date:** 29-11-2011 at 11:57 AM

The publication section includes:

- PubMed ID:** 15467722
- Title:** Amplification of IFN- $\alpha$ -induced STAT1 activation
- Publication Date:** 2004-10-03
- Abstract:** A key function of interferons is priming multiple cell types for enhanced activation by cytokines and inflammatory factors, including type I receptor family members. Interferons also prime cells for subsequent responses. Here we show that interferon- $\alpha$  (IFN- $\alpha$ )-induced activation of the transcriptional activator STAT1 and inflammatory STAT1 target genes was enhanced in IFN- $\gamma$ -primed macrophages. Enhanced IFN- $\alpha$  signaling was dependent on the presence of the transcription factor Syk and on adaptor proteins that activate Syk through immunoreceptor tyrosine activation motifs. Increased STAT1 expression contributed to enhanced IFN- $\alpha$ -induced STAT1 activation. Syk activation was required for this effect. We propose that crosstalk between cytokine and immune cell-specific immunoreceptor tyrosine activation motif-dependent signaling pathways regulates macrophage responses to IFNs.

Experiment Design, Experiment Type, Affiliations, Authors, and Publication fields are present but contain placeholder text.

The Edit Details screen will be displayed.

The following fields are editable:

- Description
- Publication Date
- Abstract
- Experiment Design
- Experiment Type
- Affiliations
- Authors
- Publication

Edit the required fields and then select the 'Update' button at the bottom of the screen.

### Deleting your Experiment

14.

**Interferome**

home my home experiments search tissue expression regulatory analysis sequence download  
 database statistics references how to cite cited by help contact us

Experiment > Experiments > E-GEO-1740

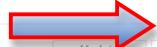
**Experiment Details**

Name:	E-GEO-1740
Base Registered Date:	2011-11-23
Base Owner:	Irina Rusinova
Description:	Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.
Approved:	true
Imported By:	Irina Rusinova
Imported Date:	2011-11-29 at 11:57 AM
Modified By:	Irina Rusinova
Modified Date:	2011-11-29 at 11:57 AM

**Publication**

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Title:	Amplification of IFN- $\alpha$ -induced STAT1 activation and inflammatory function by Syk and ITAM-containing adaptors
Publication Date:	2004-10-03
Abstract:	A key function of interferons is priming multiple cell types for enhanced activation by cytokines and inflammatory factors, including tumor necrosis factor, bacterial lipopolysaccharide and interferons themselves. Here we show that interferon- $\alpha$ (IFN- $\alpha$ )-induced activation of the transcriptional activator STAT1 and inflammatory STAT1 target genes was enhanced in IFN- $\gamma$ -primed macrophages. Enhanced IFN- $\alpha$ signaling and proinflammatory function were dependent on the tyrosine kinase Syk and on adaptor proteins that activate Syk through immunoreceptor tyrosine activation motifs. Increased STAT1 expression contributed to enhanced IFN- $\alpha$ -induced STAT1 activation in primed macrophages. These results identify a mechanism by which crosstalk between cytokine and immune cell-specific immunoreceptor tyrosine activation motif-dependent signaling pathways regulates macrophage responses to IFN- $\alpha$ .
Experiment Design:	Human monocytes were purified from peripheral blood mononuclear cells immediately after isolation by positive selection with anti-CD14 magnetic beads, as recommended by the manufacturer (Miltenyi Biotec) and were cultured in RPMI 1640 medium (Invitrogen) supplemented with 10% human serum and 10 ng/ml of macrophage colony-stimulating factor in the presence or absence of 150 pg/ml of IFN- $\gamma$ . Macrophages from three independent blood donors were cultured for 2 d with or without 150 pg/ml of IFN- $\gamma$ and then were stimulated for 3 h with 25 ng/ml of IFN- $\alpha$ . The cRNA obtained was hybridized to U95Av2 oligonucleotide microarrays according to the instructions of the manufacturer (Affymetrix). Data were analyzed with Affymetrix Suite 5.0 and Genespring (Silicon Genetics).
Experiment Type:	Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]
Affiliations:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Authors:	Nat Immunol 5(11):1181-9 (2004)
Publication:	

Datasets File Edit Capture Window Help

 Update Delete Permissions Public Registration

Open an experiment and select the 'Delete' button at the bottom of the screen

There will be a prompt asking to confirm your decision as it will be removed from the database permanently.

#### **Granting Permissions to an Experiment**

The owner of the experiment will be able to assign permissions for users to view, update, import, export, delete and give access rights to experiments.

15.

**Interferome**

home my home experiments search tissue expression regulatory analysis sequence download

database statistics references how to cite cited by help contact us

Experiment > Experiments > E-GEO-1740

**Experiment Details**

Name:	E-GEO-1740
Base Registered Date:	2011-11-23
Base Owner:	Irina Rusinova
Description:	Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.
Approved:	true
Imported By:	Irina Rusinova
Imported Date:	2011-11-29 at 11:57 AM
Modified By:	Irina Rusinova
Modified Date:	2011-11-29 at 11:57 AM

**Publication**

Publication Id:	15467722
Title:	Amplification of IFN- $\alpha$ -induced STAT1 activation and inflammatory function by Syk and ITAM-containing adaptors
Publication Date:	2004-10-03
Abstract:	A key function of interferons is priming multiple cell types for enhanced activation by cytokines and inflammatory factors, including tumor necrosis factor, bacterial lipopolysaccharide and interferons themselves. Here we show that interferon- $\alpha$ (IFN- $\alpha$ )-induced activation of the transcriptional activator STAT1 and inflammatory STAT1 target genes was enhanced in IFN- $\gamma$ -primed macrophages. Enhanced IFN- $\alpha$ signaling and proinflammatory function were dependent on the tyrosine kinase Syk and on adaptor proteins that activate Syk through immunoreceptor tyrosine activation motifs. Increased STAT1 expression contributed to enhanced IFN- $\alpha$ -induced STAT1 activation in primed macrophages. These results identify a mechanism by which crosstalk between cytokine and immune cell-specific immunoreceptor tyrosine activation motif-dependent signaling pathways regulates macrophage responses to IFN- $\alpha$ .
Experiment Design:	Human monocytes were purified from peripheral blood mononuclear cells immediately after isolation by positive selection with anti-CD14 magnetic beads, as recommended by the manufacturer (Miltenyi Biotec) and were cultured in RPMI 1640 medium (Invitrogen) supplemented with 10% human serum and 10 ng/ml of macrophage colony-stimulating factor in the presence or absence of 150 pg/ml of IFN- $\gamma$ . Macrophages from three independent blood donors were cultured for 2 d with or without 150 pg/ml of IFN- $\gamma$ and then were stimulated for 3 h with 25 ng/ml of IFN- $\alpha$ . The cRNA obtained was hybridized to U95Av2 oligonucleotide microarrays according to the instructions of the manufacturer (Affymetrix). Data were analyzed with Affymetrix Suite 5.0 and Genespring (Silicon Genetics).
Experiment Type:	Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]
Affiliations:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Authors:	Nat Immunol 5(11):1181-9 (2004)
Publication:	

Update Delete Permissions Public Registration

Datasets File Edit Capture Window Help

Once in an experiment, select the 'Permissions' button at the bottom of the screen.

16.

**Interferome**

home my home experiments search tissue expression regulatory analysis sequence download  
database statistics references how to cite cited by help contact us

Experiment > E-GEO-1740 > Changing Permissions

**E-GEO-1740**  
Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.  
Imported by Irina Rusinova, Imported Date: 29-11-2011 at 11:57 AM, Modified by Irina Rusinova, Modified date: 29-11-2011 at 11:57 AM

**Permissions**  
View Details

There are three types of the access control permissions for an experiment in the system:

- All Anonymous Users Permissions - Permissions which are granted to all users who are not logged in the system
- All Registered Users Permissions - Permissions which are granted to all registered users in the system
- An Individual User Permissions - Permissions which are granted to a registered user in the system

Permissions can be granted to All Registered Users or All Anonymous Users or An Individual User.

If the experiment permissions are neither granted to All Registered Users nor All Anonymous Users, which means this experiment is a private experiment.

The default permissions of an experiment will be private, Only the owner of an experiment and the system administrators have access.

You can grant the specific permissions to an individual user in an experiment, and the allowed permissions for All Anonymous Users in this experiment will be inherited.

**Grant permission to** -- Select User -- Add Save All

User Name	View	Update	Import	Export	Delete	Access Control
All anonymous users	<input checked="" type="checkbox"/>			<input type="checkbox"/>		
All registered users	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

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You will be able to grant the same or different permissions to individual users, anonymous users and registered users.

Note: Allocating Access Control to a user will give them rights to assign permissions against your experiments.



Admin Kim Linton

my home  
my experiments  
import experiments  
experiments  
import annotations  
events  
users  
logout

[Publishing Experiments to Research Data Australia \(RDA\)](#)

17.

The screenshot shows the Interferome website interface. At the top, there is a navigation bar with links: home, my home, experiments, search, tissue expression, regulatory analysis, sequence download, database statistics, references, how to cite, cited by, help, and contact us. Below the navigation bar, the page title is "Experiment > Experiments". A message indicates "A total of 6 experiments". The experiments listed are:

- E-GEOID-1740**: Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines. Imported by Irina Rusinova, Imported Date: 29-11-2011 at 11:57 AM, Modified by Irina Rusinova, Modified date: 29-11-2011 at 11:57 AM. Approved: true.
- E-GEOID-3203**: Gene expression from mouse lymph node B cells purified by flow cytometric sorting using single channel oligonucleotide microarrays. There were selected 2 groups from publication: 1) wild type uninfected mice (control group), 2) cells stimulated with IFN- $\beta$  in vitro for 17 h. Each group contained 4 biological replicates obtained from independent experiments. There were 8 total samples and each was measured on a separate array. Imported by Irina Rusinova, Imported Date: 03-10-2011 at 04:40 PM, Modified by Irina Rusinova, Modified date: 03-10-2011 at 04:40 PM. Approved: true.
- E-GEOID-3400**: Fibroblasts induced to an antiviral state by interferon-beta. Analysis of wildtype embryo fibroblasts (MEFs) induced to an antiviral state with interferon IFN- $\gamma$ . IFN- $\gamma$  plays a crucial role in host defense by modulating gene expression and inducing antiviral activity. Imported by Irina Rusinova, Imported Date: 08-12-2011 at 01:25 PM, Modified by Irina Rusinova, Modified date: 08-12-2011 at 01:25 PM. Approved: true.
- E-GEOID-3920**: Transcription profiling of human endothelial and fibroblast cells isolated from umbilical veins treated with interferon (IFN) alpha, beta, or gamma for 5 hours. Imported by Irina Rusinova, Imported Date: 08-12-2011 at 01:22 PM, Modified by Irina Rusinova, Modified date: 08-12-2011 at 01:22 PM. Approved: true.
- E-GEOID-5542**: Transcription profiling of human A549 cell line treated with type I and II interferons vs. controls. Imported by Irina Rusinova, Imported Date: 03-10-2011 at 04:41 PM, Modified by Irina Rusinova, Modified date: 03-10-2011 at 04:41 PM. Approved: true.
- E-GEOID-9975**: Transcription profiling of mouse NIH-3T3 cells treated with interferon alpha or gamma (GEO - GSE9975). Imported by Irina Rusinova, Imported Date: 03-10-2011 at 04:42 PM, Modified by Irina Rusinova, Modified date: 03-10-2011 at 04:42 PM. Approved: true.

Select 'my experiments' in the right tool bar  
A list of your experiments will be displayed.

Select the experiment to be published.

The sidebar on the right contains a user profile icon for "Admin Kim Linton" and a vertical menu with the following options: my home, my experiments, import experiments, experiments, import annotations, events, users, and logout.

18.

**Interferome**

home my home experiments search tissue expression regulatory analysis sequence download  
database statistics references how to cite cited by help contact us

Experiment > Experiments > E-GEO-1740

**Experiment Details**

Name:	E-GEO-1740
Base Registered Date:	2011-11-23
Base Owner:	Irina Rusinova
Description:	Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.
Approved:	true
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Experiment Type:	Affymetrix GeneChip Human Genome U95Av2 [HG_U95Av2]
Affiliations:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Authors:	Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Publication:	Nat Immunol 5(11):1181-9 (2004)

Update Delete Permissions **Public Registration**

Datasets File Edit Capture Window Help

Select the 'Public Registration' button at the bottom of the screen.

19.

Metadata Public Registration
Name: <b>E-GEO-1740</b>
Description: Transcription profiling of Type I interferon response of human blood monocytes primed with or without Type II interferon. Monocytes obtained from 3 donors. Results provide insight into mechanisms underlying the enhanced response of IFN primed monocytes to cytokines.
Publication Information
Title: Amplification of IFN- $\alpha$ -induced STAT1 activation and inflammatory function by Syk and ITAM-containing adaptors
Publication Date: 2004-10-03
Authors: Ioannis Tassilas, Xiaoyu Hu, Hao Ho, Yogita Kashyap, Paul Paik, Yongmei Hu, Clifford A Lowell, Lionel B Ivashkiv
Abstract: A key function of interferons is priming multiple cell types for enhanced activation by cytokines and inflammatory factors, including tumor necrosis factor, bacterial lipopolysaccharide and interferons themselves. Here we show that interferon-alpha (IFN- $\alpha$ )-induced activation of the transcriptional activator STAT1 and inflammatory STAT1 target genes was enhanced in IFN- $\gamma$ -primed macrophages. Enhanced IFN- $\alpha$ signaling and proinflammatory function were dependent on the tyrosine kinase Syk and on adaptor proteins that activate Syk through immunoreceptor tyrosine activation motifs. Increased STAT1 expression contributed to enhanced IFN- $\alpha$ -induced STAT1 activation in primed macrophages. These results identify a mechanism by which crosstalk between cytokine and immune cell-specific immunoreceptor tyrosine activation motif-dependent signaling pathways regulates macrophage responses to IFN- $\alpha$ .

The Registration Screen will be displayed.  
The Title and Description fields will be pre-populated.

20.	<p>Researchers, Grants, License and Access Rights Information</p> <p>The associated researcher(s): <input type="button" value="Add Researcher"/></p> <p><span style="color: red;">The associated researcher(s) not found</span></p> <p>The associated grant(s) or project(s): <span style="color: red;">The associated grant(s) or project(s) not found</span></p> <p>The experiment license: <input type="button" value="Select License"/></p> <p>The access rights: This work is publicly available</p> <p>Terms and Conditions</p> <p>You are about to publish or register the above research work outside Monash University to be available to the general public via Internet sites that can harvest this information. Sites include but are not limited to: Research Data Australia and search engines. Before you proceed, please ensure you have selected a licence to associate with your research data and work. By using this system to publish or register your research work you are continuing to agree to adhere to the Terms and Conditions of use detailed at <a href="http://www.monash.edu/eresearch/about/ands-merc.html">http://www.monash.edu/eresearch/about/ands-merc.html</a>. Please read these Terms and Conditions carefully before registering.</p> <p><input type="button" value="I accept, Preview"/></p>	<p>Enter the Researchers associated with the Experiment. The Interferome solution will attempt to validate the Researcher in the Research Master and return the associated grants/project/s.</p> <p>Select the appropriate licence. The two options being the Creative Commons Licence or to create one of your own.</p> <p>Determine Access Rights and accept the Terms and Conditions by selecting 'I accept, Preview'.</p> <p>The Experiment will then be registered with RDA and available on the RDA website for viewing.</p> <p><a href="http://services.and.org.au/home/orca/rda/">http://services.and.org.au/home/orca/rda/</a></p>
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Search

21.

Select the Search tab on the top tool bar.  
The Search screen will be displayed.

Search conditions include:

- Interferon Type
- Interferon Sub Type
- Treatment Concentration by Range
- Treatment Time by Range
- In Vivo/ In Vitro
- Species
- System
- Organ
- Cell
- Cell Line
- Normal/Abnormal
- Fold Change by Range

Searches can be done by entering gene symbols (comma separated) or GenBank Accession or Ensemble ID.

Select 'Search' for the result set to be shown below the search criteria.

22.

Search Results								
Found a total of 2,944 Data								
Page size: 30			Sorted by: dataset		Ordered by: desc			
Dataset	FoldChange	Interferon Type	Treatment Time	Gene Symbol	Gene Description	GenBank ID	Ensembl ID	Probe ID
2	-2.9921455	I	3.0	<a href="#">CALCRL</a>	calcitonin receptor-like	<a href="#">L76380</a>	<a href="#">ENSG00000064989</a>	34995_at
2	3.8010213	I	3.0	<a href="#">CD40</a>	CD40 molecule, TNF receptor superfamily member 5	<a href="#">AI865431</a>	<a href="#">ENSG00000101017</a>	35149_at
2	-1.9815087	I	3.0	<a href="#">PRRD2</a>	regulation of nuclear pre-mRNA domain containing 2	<a href="#">AB007929</a>	<a href="#">ENSG00000163125</a>	35244_at
2	1.6131796	I	3.0	<a href="#">RBM14 // RBM4</a>	RNA binding motif protein 14 // RNA binding motif protein 4	<a href="#">U89505</a>	<a href="#">ENSG00000173933 //</a> <a href="#">ENSG00000239306 //</a> <a href="#">ENSG00000248643</a>	35351_at
2	-2.199761	I	3.0	<a href="#">LRRC48</a>	leucine rich repeat containing 48	<a href="#">W28256</a>	<a href="#">ENSG00000171962</a>	35427_at
2	-1.8346272	I	3.0	<a href="#">SNX1</a>	sorting nexin 1	<a href="#">AL050148</a>	<a href="#">ENSG00000028528</a>	35645_at
2	-1.3531518	I	3.0	<a href="#">PRPF8</a>	PRP8 pre-mRNA processing factor 8 homolog (S. cerevisiae)	<a href="#">AB007510</a>	<a href="#">ENSG00000174231</a>	35753_at
2	-2.0173013	I	3.0	<a href="#">EIF2S3</a>	eukaryotic translation initiation factor 2, subunit 3 gamma, 52kDa	<a href="#">L19161</a>	<a href="#">ENSG00000130741 //</a> <a href="#">ENSG00000180574</a>	35934_at
2	-1.3544061	I	3.0	<a href="#">LOC100129361</a>	hypothetical LOC100129361	<a href="#">AI864120</a>	---	36023_at
2	1.4551723	I	3.0	<a href="#">RAB5A</a>	RAB5A, member RAS oncogene family	<a href="#">M28215</a>	<a href="#">ENSG00000144566</a>	36110_at
							<a href="#">ENSG00000204371 //</a> <a href="#">ENSG00000206376 //</a> <a href="#">ENSG00000224143 //</a> <a href="#">ENSG00000227333 //</a> <a href="#">ENSG00000232045 //</a> <a href="#">ENSG00000236759 //</a> <a href="#">ENSG00000238134</a>	
2	-1.8902556	I	3.0	<a href="#">EHMT2</a>	euchromatic histone-lysine N-methyltransferase 2	<a href="#">X69838</a>		36200_at
2	-1.5052273	I	3.0	<a href="#">PRKACG</a>	protein kinase, cAMP-dependent, catalytic, gamma	<a href="#">M34182</a>	<a href="#">ENSG00000165059</a>	36359_at
2	-1.5255729	I	3.0	<a href="#">C2CD3</a>	C2 calcium-dependent domain containing 3	<a href="#">AL080220</a>	---	36552_at
2	-1.7976351	I	3.0	<a href="#">RALBP1</a>	ralA binding protein 1	<a href="#">L42542</a>	<a href="#">ENSG0000017797</a>	36628_at
2	19.283527	I	3.0	<a href="#">LAG3</a>	lymphocyte-activation gene 3	<a href="#">X51985</a>	<a href="#">ENSG00000089692</a>	36776_at
2	-1.2378188	I	3.0	<a href="#">STIM1</a>	stromal interaction molecule 1	<a href="#">U52426</a>	<a href="#">ENSG00000167323</a>	36900_at
2	-1.3790386	I	3.0	<a href="#">BRP44</a>	brain protein 44	<a href="#">AL035304</a>	<a href="#">ENSG00000143158</a>	37000_at
2	6.985655	I	3.0	<a href="#">GZMB</a>	granzyme B (granzyme 2, cytotoxic T-lymphocyte-associated serine esterase 1)	<a href="#">M17016</a>	<a href="#">ENSG00000100453</a>	37137_at
2	-1.3347861	I	3.0	<a href="#">HARS2</a>	histidyl-tRNA synthetase 2, mitochondrial (putative)	<a href="#">U18937</a>	<a href="#">ENSG00000112855</a>	37240_at
2	-1.4757563	I	3.0	<a href="#">PHB2</a>	prohibitin 2	<a href="#">U72511</a>	<a href="#">ENSG00000215021</a>	37364_at
2	-1.278677	I	3.0	<a href="#">FNTB</a>	farnesyltransferase, CAAX box, beta	<a href="#">L00635</a>	<a href="#">ENSG00000125954</a>	37488_at
2	3.918529	I	3.0	<a href="#">IRF4</a>	interferon regulatory factor 4	<a href="#">U52682</a>	<a href="#">ENSG00000137285</a>	37625_at
2	-1.2884935	I	3.0	<a href="#">SNW1</a>	SNW domain containing 1	<a href="#">AF045184</a>	<a href="#">ENSG00000100603</a>	37715_at
2	-1.4982581	I	3.0	<a href="#">DDX51</a>	DEAD (Asp-Glu-Ala-Asp) box polypeptide 51	<a href="#">AL079273</a>	<a href="#">ENSG00000185163</a>	37814_g_at

The Results Set is displayed in a table over potentially multiple pages.

It can be sorted by attribute or ordered by ascending/descending based on Gene Description.

The attributes contained in the Result Set table are:

- Dataset id
- Fold Change
- Interferon Type
- Treatment Time
- Gene Symbol
- Gene Description
- GenBankID
- Ensembl ID
- Probe ID

Note: GenBank ID contains a hyperlink to NCBI and Ensembl ID contains a hyperlink to the relevant page in Ensembl.