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# WT-Ovation™ One-Direct RNA Amplification System

## Explore true, single-cell gene expression using microarrays or qPCR

For the first time, using NuGEN's new WT-Ovation™ One-Direct System, researchers can interrogate the entire transcriptome from a single cell in a single day. Starting directly from lysate of one or a few cells or with as little as 10 pg total RNA, NuGEN's proven, robust amplification produces cDNA for global gene expression analysis on your preferred analysis platform. The simple, three-step, add-and-incubate process is easily completed using standard lab equipment and is automatable on laboratory robotics systems for high-throughput applications. This sensitive, robust, whole-transcriptome amplification system opens new frontiers, allowing you to access even the smallest, most challenging samples.



*imagine  
true, single-cell sensitivity*

*more  
direct cell lysis protocol*

*from less  
using a single cell*



OVATION<sup>®</sup>  
SYSTEM

NuGEN Technologies, Inc.

[www.nugeninc.com](http://www.nugeninc.com)

# WT-Ovation™ One-Direct System

## Simple, Single-Day Process

Step 1: Lyse target cell, eliminating inefficient RNA purification

Step 2: Amplify whole transcriptome

Step 3: Prepare for microarray analysis, or analyze with qPCR

## Global, whole-transcriptome gene expression profiling from a single cell, in just one day.

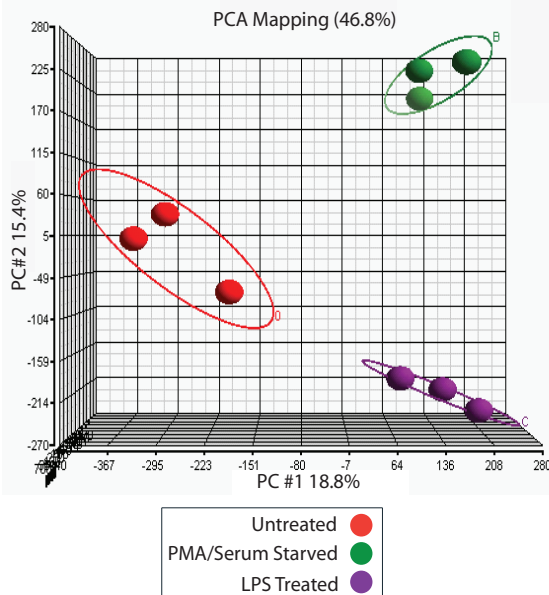
Until now, researchers have been unable to perform global gene expression analysis from a single cell using microarray technology. The WT-Ovation™ One-Direct RNA Amplification System makes possible microarray analysis from one cell, or just a few cells, while eliminating costly, time-consuming RNA purification. Biological samples are composed of heterogeneous cell populations. Therefore, determining the functional contribution of each individual cell in such a complex matrix requires the granularity of a true single-cell interrogation methodology. The WT-Ovation One-Direct System is a breakthrough for researchers developing more effective diagnostic tools and targeted drug therapies in immunology, neurobiology, hematopoiesis, and cancer stem cell biology.

## Sample Types

- Stem Cells
- Circulating tumor cells
- Flow-sorted cells
- LCM
- Cancer stem cells
- Embryonic cells
- And more...



## Microarray Analysis of 10 Cell Lysate Samples Amplified With the WT-Ovation™ One-Direct System



In order to demonstrate array performance of cell lysates, we performed triplicate amplifications representing 10-cell samples of untreated THP-1 cells (red), PMA treated/serum starved cells (green), and PMA treated/serum starved cells after exposure to LPS (purple). The cells were lysed using the Direct Lysis Buffer (included), and lysates were amplified without further purification using the WT-Ovation™ One-Direct RNA Amplification System. The amplified cDNA was labeled and hybridized to Affymetrix GeneChip® Human Gene 1.0 ST arrays. Principal Components Analysis (PCA) was performed using Partek Genomics Suite software (at left). The ellipses define a two standard deviation boundary from the centroids of each cluster indicating a statistically significant differentiation of samples based on treatment group. An analysis of the array data reveals differential expression of genes consistent with published data on gene expression profiles in LPS stimulation models (not shown). This demonstrates that the amplification process is highly reproducible and maintains the integrity of the biological data using lysed cells as input without further purification.

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## WT-Ovation™ One-Direct System

Catalog No.: 3500-12, 12 reactions  
Input: Cell lysate from one or more cells, or 10 pg to 500 pg of purified total RNA  
Yield: 5 µg to 12+ µg

### Related Products

FL-Ovation cDNA Biotin Module  
NuGEN Agilent Solution  
NuGEN Illumina Protocol

### Technical Documents

User Guide  
Quick Protocol  
Technical Reports

### Contact Information

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