

**Center for Skeletal Research**  
MGH Endocrine Unit

**Cell Signaling & Subcellular Imaging Core**

Director: Thomas Gardella, Ph.D.

Braden Corbin, Technician

Email: CSRmail@partners.org

Website: <https://csr.mgh.harvard.edu/cell-signaling>

**Assay services for 45 Signal Pathway  
Arrays**

Service to provide assays of 45-different signaling pathways in cultured cells using SABio's luciferase-based downstream gene reporter array system (see Table). Core will perform assays on user provided test cells and reagents. User costs are based on the cost of the kit and the fraction of the kit that is consumed by the user samples (wells).

| Well   | Pathway                | Tx Factor    |
|--------|------------------------|--------------|
| A1-2   | Amino Acid Deprivation | ATF2/3/4     |
| A3-4   | Androgen               | AR           |
| A5-6   | Antioxidant Response   | Nrf2/Nrf1    |
| A7-8   | ATF6                   | ATF6         |
| A9-10  | C/EBP                  | C/EBP        |
| A11-12 | cAMP/PKA               | CREB         |
| B1-2   | Cell Cycle             | E2F          |
| B3-4   | DNA Damage             | p53          |
| B5-6   | EGR1                   | EGR1         |
| B7-8   | ER Stress              | CBF/NF-Y/YY1 |
| B9-10  | Estrogen               | ER           |
| B11-12 | GATA                   | GATA         |
| C1-2   | Glucocorticoid         | GR           |
| C3-4   | Heat Shock             | HSF-1        |
| C5-6   | Heavy Metal            | MTF-1        |
| C7-8   | Hedgehog               | Gli          |
| C9-10  | HNF4                   | HNF4         |
| C11-12 | Hypoxia                | HIF-1a       |
| D1-2   | Interferon Regulation  | IRF1         |
| D3-4   | Type Interferon        | STAT1/STAT2  |
| D5-6   | Interferon Gamma       | STAT1        |
| D7-8   | KLF4                   | KLF4         |
| D9-10  | Liver X                | LXR          |
| D11-12 | MAPK/Erk               | SRF/Elk-1    |
| E1-2   | MAPK/Jnk               | AP-1         |
| E3-4   | MEF2                   | MEF2         |
| E5-6   | Myc                    | c-Myc        |
| E7-8   | Nanog                  | Nanog        |
| E9-10  | Notch                  | RBP-Jk       |
| E11-12 | NFkB                   | NFkB         |
| F1-2   | 4-Oct                  | 4-Oct        |
| F3-4   | Pax6                   | Pax6         |
| F5-6   | PI3K/Akt               | FOXO         |
| F7-8   | PKC/Ca++               | NFAT         |
| F9-10  | PPAR                   | PPAR         |
| F11-12 | Progesterone           | PR           |
| G1-2   | Retinoic Acid          | RAR          |
| G3-4   | Retinoid X             | RXR          |
| G5-6   | Sox2                   | Sox2         |
| G7-8   | SP1                    | SP1          |
| G9-10  | STAT3                  | STAT3        |
| G11-12 | TGFbeta                | SMAD2/3/4    |
| H1-2   | Vitamin D              | VDR          |
| H3-4   | Wnt                    | TCF/LEF      |
| H5-6   | Xenobiotic             | AhR          |
| H7-9   | Negative Control       |              |
| H10-12 | Positive Control       |              |