Anti-SHC

Cat #: HM1331
Rabbit polyclonal IgG
0.2 μg/μl, store at 4 °C

For research use only

BACKGROUND
Growth factor triggering of protein tyrosine kinase receptors induces signals that cascade to the nucleus activating mitogenic, as well as other, responses. Critical components of this process include so-called adapter proteins such as Shc and IRS-1 that lack detectable catalytic activity (1-3). These are immediate substrates of receptor tyrosine kinase activity and serve to physically link activated receptors to downstream signaling components. Whereas Shc has been implicated in signaling by diverse receptor families, IRS-1 serves primarily as the major insulin receptor substrate (4-7).

Shc also participates in insulin signaling by linking the insulin receptor to Ras by forming complexes with the adapter protein GRB2 and Sos independently of IRS-1. A protein immunologically related to IRS-1, originally designated 4PS and now known as IRS-2, was shown to become highly tyrosine phosphorylated in response to IL-4 or IGF-1 in cells lacking IRS-1.

An additional member of this family of signaling intermediates, Shb, is a SH2-conta inin g prot ein wit h char ac ter ist ic p rolin e-r ich domains (8).

The SHC gene encodes a signaling and transforming protein containing Src homology 2 and 3 (SH2 and SH3) domains. The SHC gene encodes 2 widely expressed overlapping proteins of 46 and 52 kD, both containing a C terminal SH2 domain. Adjacent to the SH2 region is a glycine and proline rich region. The 2 proteins differ in their N terminals. SHC proteins are involved in mitogenic signal transduction and act by coupling growth factor receptors to the RAS signaling pathway. The protein encoded by the SHC1 gene is thought to act as an adaptor in many signal transduction pathways, for example, facilitating the activation of RAS proteins in response to a variety of factors. SHC proteins are rapidly associated with and phosphorylated by growth factor receptors with intrinsic tyrosine kinase activity.

SPECIFICITY
This antibody specifically reacts with Shc p66, p52 and p46 of rat and human origin by Western blotting, immunoprecipitation, immuno-fluorescence and immunohistochemistry; non cross-reactive with N-Shc or other SH2 domain signaling intermediates.

Molecular Weight of Shc: 66 kDa, 52 kDa and 46 kDa. Western blotting positive control: MCF7 cell lysate.

IMMUNOGEN
A recombinant fusion protein containing sequences corresponding to the SH2 domain of human Shc.

STORAGE
This antibody is stable for 12 months when stored at 2-8° C.

REFERENCES
1 . Ravichandr an, K.S., Lee, K.K., Songyang, Z., Cantley, L.C., Burn, P., and Burakoff, S.J. 1993. Interaction of Shc with the chain of the T cell receptor upon T cell activation. Science 2 6 2: 902-905.
2. McGlade, J., Chen g, A., Pelicci, G., Pelic ci, P.G., and Pawson, T. 1992. Shc proteins are phosphorylated and regulated by the v-Src and v-Fps protein-tyrosine kinases. Proc. Natl. Acad. Sci. USA 89: 8869-8873.
3 . Pelicci, G., Langrancone, L., Grignan i, F., McGlade, J., Cavallo, F., Forni, G., Nicoletti, I., Grignani F., Pawson, T., and Pelicci, P.G. 1992. A novel transforming protein (SHC) with an SH2 domain is implicated in mitogenic signal transduction. Cell 7 0: 93-104.
4. Lee, C.-H., Li, W., Nishimur a, R., Zhou, M., Batzer, A., Myers, M.G. Jr., White, M.F., Schlessinger, J., and Skolnik, E.Y. 1993. Nck associates with the SH2 domain-docking protein IRS-1 in insulin- st imulat ed c ells. Proc. Na tl. Acad. Sci. USA 90: 11713-11717.
5. Myers, M.G., Wang, L.-M., Sun, X.J., Zhang, Y., Yenush, L., Schlessinger, J., Pierce, J.H., and White, M.F. 1994. Role or IRS-1-GRB-2 complexes in insulin sign aling. Mol. Ce ll. Biol. 14: 3577-3587.
6. Tamemoto, H., Kadowaki, T., Tobe, K., Yagi, T. Sakura, H., Hayakawa, T., Terauchi, Y., Ueki, K., Kaburagi, Y., Satoh, S., Sekihara, H., Yoshioka, S., Horikoshi, H., Furuta, Y., Ikawa, Y., Kasuga, M., Yazaki, Y., and Aizawa, S. 1994. Insulin resistance and growth retardation in mice lacking insulin receptor substrate-1. Nature 372: 182-186.
7. Araki, E., Lipes, M.A., Patti, M.-E., Brüning, J.C., Haag, B. III, Johnson, R.S., and Kahn, C.R. 1994. Alternative pathway of insulin signalling in mice with targeted disruption of the IRS-1 gene. Nature 372: 186-190.
8. Welsh, M., Mares, J., Karlsson, T., Lavergne, C., Bréant, B., and Claesson-Welsh, L. 1994. Shb is a ubiquitously expressed Src homology 2 protein. Oncogene 9: 19-27.

Ravichandran,K.S.
TITLE Signaling via Shc family adapter proteins
JOURNAL Oncogene 20 (44), 6322-6330 (2001)

Lee,M.S., Igawa,T. and Lin,M.F.

TITLE Tyrosine-317 of p52(Shc) mediates androgen-stimulated proliferation
signals in human prostate cancer cells
JOURNAL Oncogene 23 (17), 3048-3058 (2004)

Yukimasa,S., Masaki,T., Yoshida,S., Uchida,N., Watanabe,S.,
Usuki,H., Yoshiji,H., Maeta,T., Ebara,K., Nakatsu,T., Kurokohchi,K.
and Kuriyama,S.
TITLE Enhanced expression of p46 Shc in the nucleus and p52 Shc in the
cytoplasm of human gastric cancer
JOURNAL Int. J. Oncol. 26 (4), 905-911 (2005)

PRODUCTS FROM HYPROMATRIX, INC.

A. AntibodyArray™s:

1. Signal Transduction AntibodyArray™
   Catalog Number HM3000
2. Apoptosis AntibodyArray™
   Catalog Number HM4000
3. Cell Cycle AntibodyArray™
   Catalog Number HM5000

B. Staining AntibodyArray™s

1. Staining AntibodyArray™ I
   Catalog Number HM8100
2. AntibodyArray Staining Apparatus
   Catalog Number HM8000

C. Antibodies

1. HRP-conjugated antibodies

- anti-phosphotyrosine
  Catalog Number HM2040
- anti-phosphoserine
  Catalog Number HM2070
- anti-phosphothreonine
  Catalog Number HM2090

and more…

2. Primary antibodies

Hypromatrix offers a variety of high quality antibodies. For a complete list of antibodies and their specificities, please visit our web site at www.hypromatrix.com.

CONTACT

Hypromatrix, Inc.
100 Barber Avenue
Worcester, MA 01606
USA

Tel: 508-856-7900
Fax: 508-302-0748
Email: contact@hypromatrix.com
Web: www.hypromatrix.com