



تاریخ دریافت ۸۴/۰۲/۰۷، تاریخ پذیرش ۸۴/۰۸/۰۷

(Stem Cell Factor, SCF) :

SCF  
SCF  
CBC  
SCF  
(ELISA)  
SCF  
SCF  
SCF  
CBC  
SCF  
SCF  
CBC  
SCF  
SCF

(p= / )

(p= / )

( )

( )  $\beta$

( )

(( )12q

Sl

)

<sup>4</sup> Matrix Metalloproteinase

<sup>5</sup> Hepatocyte Growth Factor

<sup>6</sup> Tissue Polypeptide Antigen

<sup>7</sup>  $\beta$  Transforming Growth factor



pg/ml

( = ± SD ) ±  
 )  
 ( = ± SD ) ± pg/ml ( )  
 .( ) (p= / )

C 20°

( ) (p= / )

) ELISA

( Immuno-Biological Laboratories Co

(TMB)

( ) (p= / )

( )

g/ml ( MI)

( = ± SD ) ±  
 ( = ± SD ) ± pg/ml (+MI)  
 .( ) (p= / ) +MI MI

/ ( = ) ( = )

/ / (pg/ml)

SPSS

( SPSS)

t-test

(p= / )

I pg/ml

(II) ( = ± SD ) ±  
 ( = ± SD ) ± pg/ml  
 ( = ± SD ) ± pg/ml (III)  
 ( = ± SD ) ± pg/ml (IV)

p> / .

(MI+) (MI )

IV III II I

%

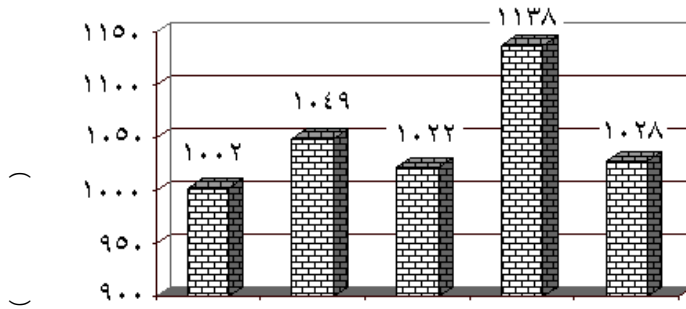
%

pg/ml

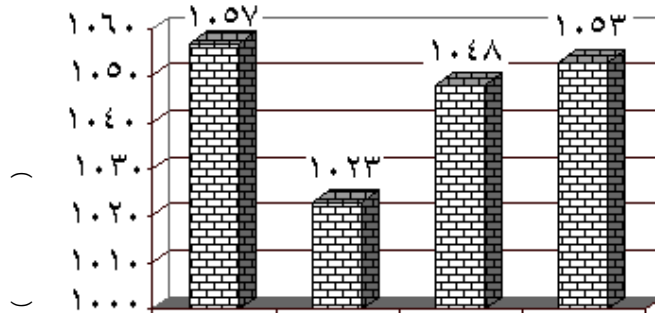
± pg/ml  
 .(p= / ) ±

( = ± SD ) ± pg/ml  
 ( = ± SD ) ± pg/ml

<sup>1</sup> Stage  
<sup>2</sup> Grade



(p= / )



CBC

Hb

(p=) / ± / \* /ml

BUN

(p=) / ± / \* /ml

g/dl

(p=) ± \* /ml

(p=) / ± /

( )

	<b>SD ±</b>	
/	/ ± /	( ×)
/	/ ± /	( ×)
/ /	/ ± /	( ×)
	±	( )
	/ ± /	
	/ ± /	
	/ ± /	
/	± /	

( )

( )

ELISA

± pg/ml

/ ( )

( )

) ( )

( R&D systems

( )

(CRF)

.( ± pg/ml)

( $p > /$  ) ( $p < /$  ) BUN

.( )

( $p < /$  )

( $p < /$  )

( $p < /$  )

<sup>3</sup> Simak

<sup>1</sup> Langley

<sup>2</sup> Kitoh

( )

mRNA

( )

( )

( )

KU-19-19

mRNA

( )

(INF- $\gamma$ )

TNF- $\alpha$  IL IL IL

## References:

1. Andrews B, Shariat SF, Kim JH, Wheeler TM, Slawin KM, Lerner SP. Preoperative plasma levels of interleukin-6 and its receptor predict disease recurrence and survival of patients with bladder cancer. *J Urol*, 2002, 167: 1475-1481.
2. Gohji K, Fujimoto N, Fujii A, et al. Prognostic significance of circulating matrix metalloproteinase-2 to tissue inhibitor of metalloproteinase-2 ratio in recurrence of urothelial cancer after complete resection. *Cancer Res*, 1996, 56: 3196-3201
3. Gohji K, Nomi M, Niitani Y, et al. Independent prognostic value of serum hepatocyte growth factor in bladder cancer. *J Clin Oncol*, 2000, 18: 2963-2969.
4. Maulard-Durdux C, Toubert ME, Hennequin C, et al: Serum tissue polypeptide antigen in bladder cancer as a tumor marker. A prospective study. *J Clin Oncol*, 1997, 15: 3446-3451.
5. Shariat SF, Kim JH, Andrews B, et al. Pre-operative plasma levels of transforming growth factor  $\beta$ 1 strongly predict clinical outcome in patients with bladder carcinoma. Unpublished data.
6. Huang E, Nocka K, Beier DR, Chu T-Y, Buck J, Lahm H-W, Wellner D, Leder P, Besmer P. The hematopoietic growth factor KL is encoded by the Sl locus and is the ligand of the c-kit receptor, the gene product of the W locus. *Cell*, 1990, 63:225-237.
7. Marshall CJ. Specificity of receptor tyrosine kinase signaling: Transient versus sustained extracellular signal-regulated kinase activation. *Cell*, 1995, 80:179-192.
8. Toksoz D, Zsebo KM, Smith KA, Hu S, Brankow D, Suggs SV, Martin FH, Williams DA. Support of human hematopoiesis in long-term bone marrow cultures by murine stromal cells selectively expressing the membrane-bound and secreted forms of the human homolog of the steel gene product, stem cell factor. *Proc Natl Acad Sci USA*, 1992, 89:7350-7360.

9. Molineux G, Migdalska A, Szmitkowski M, Zsebo K, Dexter TM. The effects on hematopoiesis of recombinant stem cell factor (ligand for c-kit) administered in vivo to mice either alone or in combination with granulocyte colony-stimulating factor. *Blood*, 1991, 78:961-977 .
10. Tsuneyama K, Kono N, Yamashiro M, Kouda W, Sabit A, Sasaki M, Nakanuma Y. Aberrant expression of stem cell factor on biliary epithelial cells and peribiliary infiltration of c-kit-expressing mast cells in hepatolithiasis and primary sclerosing cholangitis: a possible contribution to bile duct fibrosis. *J Pathol*, 1999, Dec; 189(4): 609-614.
11. Vincent S, Segretain D, Nishikawa S, Nishikawa SI, Sage J, Cuzin F, Rassoulzadegan M. Stage-specific expression of the Kit receptor and its ligand (KL) during male gametogenesis in the mouse: a Kit-KL interaction critical for meiosis. *Development*, 1998, Nov; 125(22): 4585-4593.
12. Bokemeyer C, Kuczyk MA, Dunn T, Serth J, Hartmann K, Jonasson J, Pietsch T, Jonas U, Schmoll HJ. Expression of stem-cell factor and its receptor c-kit protein in normal testicular tissue and malignant germ-cell tumours. *J Cancer Res Clin Oncol*, 1996, 122(5): 301-306.
13. Dolci S, Pellegrini M, Di Agostino S, Geremia R, Rossi P. Signaling through extracellular signal-regulated kinase is required for spermatogonial proliferative response to stem cell factor. *J Biol Chem*, 2001, Aug 13 [epub ahead of print]
14. Rossi P, Sette C, Dolci S, Geremia R. Role of c-kit in mammalian spermatogenesis. *J Endocrinol Invest*, 2000, Oct; 23(9):609-615.
15. Yan W, Kero J, Huhtaniemi I, Toppari J. Stem cell factor functions as a survival factor for mature Leydig cells and a growth factor for precursor Leydig cells after ethylene dimethane sulfonate treatment: implication of a role of the stem cell factor/c-Kit system in Leydig cell development. *Dev Biol*, 2000, Nov 1; 227(1): 169-182.
16. Driancourt MA, Reynaud K, Cortvrindt R, Smitz J. Roles of KIT and KIT LIGAND in ovarian function. *Rev Reprod*, 2000, Sep; 5(3):143-152.
17. Reynaud K, Cortvrindt R, Smitz J, Bernex F, Panthier JJ, Driancourt MA: Alterations in ovarian function of mice with reduced amounts of KIT receptor. *Reproduction*, 2001, Feb; 121(2):229-237.
18. Huang CT, Weitsman SR, Dykes BN, Magoffin DA. Stem cell factor and insulin-like growth factor-I stimulate luteinizing hormone-independent differentiation of rat ovarian theca cells. *Biol Reprod*, 2001, Feb; 64(2):451-456.
19. Ito M, Harada T, Tanikawa M, Fujii A, Shiota G, Terakawa N: Hepatocyte growth factor and stem cell factor involvement in paracrine interplays of theca and granulosa cells in the human ovary. *Fertil Steril*, 2001, May; 75(5): 973-979.
20. Miyamoto T, Sasaguri Y, Sasaguri T, Azakami S, Yasukawa H, Kato S, Arima N, Sugama K, Morimatsu M. Expression of stem cell factor in human aortic endothelial and smooth muscle cells. *Atherosclerosis*, 1997, Mar 21; 129(2):207-213.
21. Blume-Jensen P, Claesson-Welsh L, Siegbahn A, Zsebo KM, Westermark B, Heldin C-H. Activation of the human c-kit product by ligand-induced dimerization mediates circular actin reorganization and chemotaxis. *EMBO J*, 1991, 10:4121-4133.
22. Konig A, Corbacioglu S, Ballmaier M, Welte K. Downregulation of c-kit expression in human endothelial cells by inflammatory stimuli. *Blood*, 1997, Jul 1;90(1):148-155.
23. Domen J, Weissman IL. Hematopoietic stem cells need two signals to prevent apoptosis; BCL-2 can provide one of these, Kitl/c-Kit signaling the other. *J Exp Med*, 2000, Dec 18; 192 (12):1707-1718.
24. Sui X, Krantz SB, Zhao ZJ. Stem cell factor and erythropoietin inhibit apoptosis of human erythroid progenitor cells through different signalling pathways. *Br J Haematol*, 2000, Jul; 110(1):63-70.
25. Nishio M, Oda A, Koizumi K, Satoh I, Sato Y, Endoh T, Tsutsumi A, Fujihara M, Ikebuchi K, Ikeda H, Koike T, Sawada KI. Stem cell factor prevents Fas-mediated apoptosis of human erythroid precursor cells with Src-family kinase dependency. *Exp Hematol*, 2001, Jan;29(1):19-29
26. Zhang W, Stoica G, Tasca SI, Kelly KA, Meininger CJ. Modulation of tumor angiogenesis by stem cell factor. *Cancer Res*, 2000, Dec 1; 60(23): 6757-6762.

27. Yan X-Q, Hartley C, McElroy P, Chang A, McCrean C, McNiece I. Peripheral blood progenitor cells mobilized by recombinant human granulocyte colony-stimulating factor plus recombinant rat stem cell factor contain long-term engrafting cells capable of cellular proliferation for more than two years as shown by serial transplantation in mice. *Blood*, 1995, 85:2303-2318 .
28. Andrews RG, Briddell RA, Knitter GH, Rowley SD, Appelbaum FR, McNiece IK. Rapid engraftment by peripheral blood progenitor cells mobilized by recombinant human stem cell factor and recombinant human granulocyte colony-stimulating factor in nonhuman primates. *Blood*, 1995, 85:15-29 .
29. Dasty J, Metcalfe DD. Stem cell factor induces mast cell adhesion to fibronectin. *J Immunol*, 1994, Jan 1; 152(1):213-219.
30. Kovach NL, Lin N, Yednock T, Harlan JM, Broudy VC. Stem cell factor modulates avidity of 41 and 51 integrins expressed on hematopoietic cell lines. *Blood*, 1995, 85: 159-171.
31. Lévesque J-P, Leavesley DI, Niutta S, Vadas M, Simmons PJ. Cytokines increase human hemopoietic cell adhesiveness by activation of very late antigen (VLA)-4 and VLA-5 integrins. *J Exp Med*, 1995, 181: 1805-1819.
32. Leigh BR, Khan W, Hancock SL, Knox SJ. Stem cell factor enhances the survival of murine intestinal stem cells after photon irradiation. *Radiat Res*, 1995, 142:12-25.
33. Patchen ML, Fischer R, Schmauder-Chock EA, Williams DE. Mast cell growth factor enhances multilineage hematopoietic recovery in vivo following radiation-induced aplasia. *Exp Hematol*, 1994, 22:31-44.
34. Valent P, Sillaber C, Baghestanian M, Bankl HC, Kiener HP, Lechner K, Binder BR. What have mast cells to do with edema formation, the consecutive repair and fibrinolysis? *Int Arch Allergy Immunol*, 1998, Jan; 115(1): 2-8.
35. Bokemeyer C, Kuczyk MA, Dunn T, Serth J, Hartmann K, Jonasson J, Pietsch T, Jonas U, Schmoll HJ. Expression of stem-cell factor and its receptor c-kit protein in normal testicular tissue and malignant germ-cell tumours. *J Cancer Res Clin Oncol*, 1996, 122(5): 301-306.
36. Ito M, Harada T, Tanikawa M, Fujii A, Shiota G, Terakawa N. Hepatocyte growth factor and stem cell factor involvement in paracrine interplays of theca and granulosa cells in the human ovary. *Fertil Steril*, 2001, May; 75(5):973-979.
37. Mitsunari M, Harada T, Tanikawa M, Iwabe T, Taniguchi F, Terakawa N. The potential role of stem cell factor and its receptor c-kit in the mouse blastocyst implantation. *Mol Hum Reprod*, 1999, Sep; 5(9):874-879.
38. Kauma S, Huff T, Krystal G, Ryan J, Takacs P, Turner T. The expression of stem cell factor and its receptor, c-kit in human endometrium and placental tissues during pregnancy. *J Clin Endocrinol Metab*, 1996, Mar; 81(3):1261-1266.
39. Blair HC, Julian BA, Cao X, Jordan SE, Dong SS. Parathyroid hormone-regulated production of stem cell factor in human osteoblasts and osteoblast-like cells. *Biochem Biophys Res Commun*, 1999, Feb 24; 255(3): 778-784.
40. Ceponis A, Kontinen YT, Takagi M, Xu JW, Sorsa T, Matucci-Cerinic M, Santavirta S, Bankl HC, Valent P. Expression of stem cell factor (SCF) and SCF receptor (c-kit) in synovial membrane in arthritis: correlation with synovial mast cell hyperplasia and inflammation. *J Rheumatol*, 1998, Dec; 25 (12): 2304-2314.
41. Ward SM, Sanders KM. I. Functional development and plasticity of interstitial cells of Cajal networks. *Am J Physiol Gastrointest Liver Physiol*, 2001, Sep; 281(3): G602-G611.
42. Mantel C, Luo Z, Broxmeyer HE. Synergistic induction of phospholipid metabolism by granulocyte-macrophage colony stimulating factor and steel factor in human growth factor-dependent cell line, M07e. *Lipids*, 1995, Jul; 30(7): 641-647.
43. Caceres-Cortes JR, Alvarado-Moreno JA, Waga K, Rangel-Corona R, Monroy-Garcia A, Rocha-Zavaleta L, Urdiales-Ramos J, Weiss-Steider B, Hama A, Hugo P, Brousseau R, Hoang T. Implication of tyrosine kinase receptor and steel factor in cell density-dependent growth in cervical cancers and leukemias. *Cancer Res*, 2001, Aug 15;61(16):6281-6289
44. Moore S, McDiarmid LA, Hughes TP. Stem cell factor and chronic myeloid leukemia



- CD34+ cells. *Leuk Lymphoma*, 2000, Jul; 38(3-4): 211-220.
45. Mroczko B, Szmitkowski M, Czygier M. [Stem cell factor (SCF) in diagnosis and monitoring of non-small-cell lung cancer]. [Article in Polish]. *Pol Arch Med Wewn*, 1999, Mar; 101(3):213-218.
46. Pietsch T, Nicotra MR, Fraioli R, Wolf HK, Mottolese M, Natali PG. Expression of the c-Kit receptor and its ligand SCF in non-small-cell lung carcinomas. *Int J Cancer*, 1998, Jan 19; 75(2): 171-175.
47. Krystal GW, Carlson P, Litz J. Induction of apoptosis and inhibition of small cell lung cancer growth by the quinoxaline tyrphostins. *Cancer Res*, 1997, Jun 1; 57(11): 2203-2208.
48. Cohen PS, Chan JP, Lipkuns kaya M, Biedler JL, Seeger RC. Expression of stem cell factor and c-kit in human neuroblastoma. *The Children's Cancer Group. Blood*, 1994, Nov 15; 84(10): 3465-3472.
49. Osuga Y, Koga K, Tsutsumi O, Igarashi T, Okagaki R, Takai Y, Matsumi H, Hiroi H, Fujiwara T, Momoeda M, Yano T, Taketani Y. Stem cell factor (SCF) concentrations in peritoneal fluid of women with or without endometriosis. *Am J Reprod Immunol*, 2000, Oct; 44(4): 231-235.
50. Parrott JA, Kim G, Skinner MK. Expression and action of kit ligand/stem cell factor in normal human and bovine ovarian surface epithelium and ovarian cancer. *Biol Reprod*, 2000, Jun; 62(6): 1600-1609.
51. Simak R, Capodiec i P, Cohen DW, Fair WR, Scher H, Melamed J, Drobnjak M, Heston WD, Stix U, Steiner G, Cordon-Cardo C. Expression of c-kit and kit-ligand in benign and malignant prostatic tissues. *Histol Histopathol*, 2000, Apr; 15(2): 365-374.
52. Huerta-Zepeda A, Talavera A, Aviles A, Neri N, Mayani H. In Vitro Hematopoiesis in Patients with Malignant Lymphoma During Active Disease and at Complete Clinical Remission after Chemotherapy. *Leuk Lymphoma*, 2000, Nov; 39(5-6): 613-624.
53. Shinohara K, Ariyoshi K, Takeda K, Kameda N, Ruirong X. Low levels of plasma stem-cell factor in a patient with cyclic neutropenia. *Am J Hematol*, 1997, May; 55(1): 50-51.
54. Sawai N, Koike K, Mwamtemi HH, Ito S, Kurokawa Y, Sakashita K, Kinoshita T, Higuchi T, Takeuchi K, Shiohara M, Kamijo T, Higuchi Y, Miyazaki H, Kato T, Kobayashi M, Miyake M, Yasui K, Komiyama A. Thrombopoietin enhances neutrophil production by bone marrow hematopoietic progenitors with the aid of stem cell factor in congenital neutropenia. *J Leukoc Biol*, 2000, Jul; 68(1):137-143.
55. Rogala E, Skopinska-Rozewska E, Sommer E, Pastewka K, Chorostowska-Wynimko J, Sokolnicka I, Kazon M. Assessment of the VEGF, bFGF, aFGF and IL8 angiogenic activity in urinary bladder carcinoma, using the mice cutaneous angiogenesis test. *Anticancer Res*, 2001, Nov-Dec; 21(6B): 4259-4263.
56. Andrews B, Shariat SF, Kim JH, Wheeler TM, Slawin KM, Lerner SP. Preoperative plasma levels of interleukin-6 and its soluble receptor predict disease recurrence and survival of patients with bladder cancer. *J Urol*, 2002, Mar; 167(3): 1475-1481.
57. Wen R, Xie S, Ma P. [Level and significance of the soluble interleukin-2 receptor expression in serum of patients with bladder cancer] [Article in Chinese]. *Zhonghua Wai Ke Za Zhi*, 1996, Jan; 34(1):16-8.
58. Cytokine levels in patients with urinary tract cancer. *Pathol Biol (Paris)*, 1994, Nov; 42(9): 842-846.
59. Kuo JY, Ohmoto Y, Yoshida O. An assessment of interleukin-1 alpha and interleukin-1 beta production in patients with bladder cancer. *Anticancer Res*, 1996, Sep-Oct; 16(5B):3067-3070.
60. Elsasser-Beile U, von Kleist S, Fischer R, Martin M, Wetterauer U, Gallati H, Monting JS. Impaired cytokine production in whole blood cell cultures of patients with urological carcinomas. *J Cancer Res Clin Oncol*, 1993, 119 (7): 430-3.
61. Aldenborg F, Pecker R, Fall M, Olofsson A, Enerback L. Metaplastic transformation of urinary bladder epithelium: effect on mast cell recruitment, distribution, and phenotype expression. *Am J Pathol*, 1998, Jul; 153(1): 149-157.
62. Langley KE, Bennett LG, Wypych J, Yancik SA, Liu X-D, Westcott KR, Chang DG, Smith KA, Zsebo KM. Soluble stem cell factor in human serum. *Blood*, 1993, 81:656-667.
63. Kitoh T, Ishikawa H, Ishii T, Nakagawa S. Elevated SCF levels in the serum of patients

with chronic renal failure. Br J Haematol, 1998, Sep; 102(5):1151-1156.

64. Olivier Gomez C, Carballido Rodriguez JA, Reyes Martin E, Hernandez Lao A, Lopez

Bellido D, Menendez Ondina L, Alvarez-Mon Soto M. [Urinary excretion of cytokines in bladder carcinoma] [Article in Spanish]. Actas Urol Esp, 1997, May; 21(5):453-458.