



**Designation:** **HK**  
**Synonym(s):** FDC/HK  
**CLS order number:** Cryovial: 300204  
 Vital: 330204  
 DNA: 300204GD

Origin and General Characteristics	
Organism:	Homo sapiens (human)
Ethnicity:	Caucasian
Age:	Unknown, child
Gender:	Sex unspecified. Female, acc. to CLS authentication by STR analysis
Disease:	Tonsillitis
Tissue:	Tonsil
Morphology:	Fibroidal
Cell type:	Follicular dendritic reticulum cells (FDCs)
Growth Properties:	Adherent
Description:	The cell line was established from tonsillar tissue after routine tonsillectomy of a child in 1994. In coculture with activated (anti-CD40/anti- $\mu$ ) human lymphocytes soluble factors are released by HK which support growth of normal and malignant lymphocytes.
References:	<p>Kim H-S, Zhang X, Choi YS. Activation and proliferation of follicular dendritic cell-like cells by activated T lymphocytes. <i>J Immunol</i> 153:2951-2961 (1994).</p> <p>Kim H-S, Zhang X, Klyushnenkova E, Choi YS. Stimulation of germinal center B lymphocyte proliferation by an FDC-like cell line, HK. <i>J Immunol</i> 155:11101-1109 (1995).</p> <p>Kagami Y, Jung J, Choi YS, Osumi K, Nakamura S, Morishima Y, Seto M. Establishment of a follicular lymphoma cell line (FLK-1) dependent on follicular dendritic cell-like cell line HK. <i>Leukemia</i> 15:148-156 (2001).</p> <p>Chihara D, Kagami Y, Kato H, Yoshida N, Kiyono T, Okada Y, Kinoshita T, Seto M. IL-2/IL-4, Ox40L and FDC-like cell line support the in vitro tumor cell growth of adult T-cell leukemia/lymphoma. <i>Leukemia Res</i> 38:608-612 (2014).</p>
Cellosaurus citation:	FDC/HK (RRID:CVCL_IY38)
Culture Conditions and Handling	
Culture Medium:	EMEM supplemented with NEAA, L-glutamine and 20% fetal bovine serum.
Subculturing:	<p>Remove medium and rinse the adherent cells using PBS without calcium and magnesium (3-5 ml PBS for T25, 5-10ml for T75 cell culture flasks).</p> <p>Add Accutase (1-2ml per T25, 2.5ml per T75 cell culture flask), the cell sheet must be covered completely.</p> <p>Incubate at ambient temperature for 5-8 minutes.</p> <p>Carefully resuspend the cells with medium (10 ml), centrifuge for 5 min at 300xg, resuspend cells in fresh medium and dispense into new flasks which contain fresh medium.</p>
Seeding density:	Start new culture in plating the freshly thawed cells into 2xT25 cell culture flasks. Actively proliferating cells can be plated at $1 \times 10^4$ cells/cm <sup>2</sup> .
Fluid Renewal:	1 to 2 times weekly
Doubling time:	n.d.
Freeze Medium:	CM-1 (CLS order number 800150, 50ml)
Freezing recovery:	Within 24 hours
Sterility:	<p>Mycoplasma specific PCR: negative</p> <p>Mycoplasma specific Plasmotest: negative</p>
Biosafety Level:	2

	HK was tested positive for EBV. According to the German Law for the Protection against Infections (Infektionsschutzgesetz IfSG), this cell line falls under risk group L2, and can only be distributed to customers holding a valid permit of the respective authority (IfSG §44 and 45)	
Safety precautions:	<p>If the cryovial is planned to be stored in liquid nitrogen and to be thawed in the future, special safety precautions should be followed:                      Protective gloves and clothing should be used and a facemask or safety goggles must be worn when transferring frozen samples into or removing from the liquid nitrogen tank.                      The removal of a cryovial from liquid nitrogen may result in the explosion of the frozen vial creating flying fragments.                      Caputo, J.L. Biosafety procedures in cell culture. J. Tissue Cult. Methods 11:223-227, 1988. ATCC Quality Control Methods for Cell Lines, 2nd edition, 1992.</p>	
<b>Special Features of the Cell Line</b>		
Viruses:	Contains EBV.	
Surface antigens:	CD14+, CD40+, ICAM-1+, VCAM-1+	
HLA-typing:	n.d.	
DNA Profile (STR):	Amelogenin: X,X CSF1PO: 10,11 D13S317: 10,13 D16S539: 9,12 D5S818: 12 D7S820: 9,11 TH01: 8,9 TPOX: 10,11	D3S1358: 14,16 D21S11: 28,30 D18S51: 12,19 D8S1179: 10,14 FGA: 22,22 vWA: 16,17 Penta E: 7,11 Penta D: 9,12
Applications:	Feeder cell for growth of normal B lymphocytes and lymphomas/leukemias. Studies on B cell development in germinal centers of lymph nodes. Possibly research on virus infection of FDCs	

Certificate of Analysis:	The Certificate of Analysis for each batch can be requested by e-mail at <a href="mailto:service@clsgmbh.de">service@clsgmbh.de</a> .
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<b>Recommendations for handling of cells growing in suspension following delivery</b>	
Cryopreserved cells	<p>The cells come deep-frozen shipped on dry ice. Please make sure that the vial is still frozen.                      If immediate culturing is not intended, the cryovial(s) must be stored below -150°C after arrival.                      If immediate culturing is intended, please follow these instructions:                      Quickly thaw by rapid agitation in a 37°C water bath within 40-60 seconds. The water bath should have clean water containing an antimicrobial agent. As soon as the sample has thawed, remove the cryovial from the water bath. Note: A small ice clump should still remain and the vial should still be cold.                      From now on, all operations should be carried out under aseptic conditions.                      Transfer the cryovial to a sterile flow cabinet and wipe with 70% alcohol. Carefully open the vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of culture medium (room temperature). Resuspend the cells carefully. Centrifuge at 300xg for 3 min and discard the supernatant. The centrifugation step may be omitted, but in this case the remains of the freeze medium have to be removed 24 hours later.                      Resuspend the cells carefully in 10ml fresh cell culture medium and transfer them into one T25 cell culture flask. All further steps are described in the Subculture section.</p>
Vital, proliferating cells:	EBV-containing cells are not shipped out as vital cells.

Warranty:	CLS warrants for a high cell viability and culture performance only if the product(s) is (are) stored and cultured according to the information described above. Using cell culture media and supplements other than the ones recommended in this product information may result in satisfactory proliferation and viabilities. CLS, however, does not warrant for cell recovery, proliferation and function if differing formulations are employed.
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Disclaimer:

The customer shall not be entitled to employ this product for purposes other than research. Commercial utilization shall not be permitted; in particular, the cell line, its components or materials made therefrom shall not be sold or transferred to any third party. In addition, the term 'Commercial use' shall mean any activity by a party for consideration and may include, but is not limited to, use of the product or its components in manufacturing, for providing services, e.g. fee for service testing, in quality control or assurance processes within the manufacturing of products for sale, for therapeutic, diagnostic or prophylactic purposes, or for resale.