



"Molecular Characterization of CD133⁺ Cells as a Progenitor of Cancer Stem Cells in Hepatocellular Carcinoma"

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لَسْبَّانَكَ لَا عِلْمَ لَنَا
إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
الْعَلِيمُ الْعَظِيمُ

حصة قَوْلِ اللَّهِ الْعَظِيمِ

سورة المائدة الآية ١١٧

Declaration

I certify that the thesis titled "**Molecular Characterization of CD133⁺ Cells as a Progenitor of Cancer Stem Cells in Hepatocellular Carcinoma**" is my own work. The work has not been presented elsewhere for assessment. Where material has been used from other sources it has properly acknowledged/ referred.

Sign

.....

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List of Abbreviations

ABC	Adenosine triphosphate (ATP)-binding cassette
AC133	A glycosylation-dependent epitope of CD133 (epitope 1 of the CD133)
ADAM10	A disintegrin and metalloproteinase domain-containing protein 10
AFP	Alfa fetoprotein
AIDS	Acquired immune deficiency syndrome
AKT	Protein kinase B (PKB)
ALP	Alkaline phosphatase
ALT	Alanine aminotransferase
AML	Acute myeloid leukemia
ASC	Adult stem cells
ASR	Age-standardized incidence rates
AST	Aspartate aminotransferase
BAK1	BCL2 Antagonist/Killer 1
BCL2	B-cell lymphoma 2
Bim	Bcl-2-like protein 11
BM	Bone marrow
BMI1	Proto-Oncogene, Polycomb Ring Finger
CCND1	Cycline D1
CD	Cluster of differentiation
CDC42	Cell division control protein 42 homolog
CDH1	Cadherin 1
CDK4	Cyclin-dependent kinase 4
CDK6	Cyclin-dependent kinase 6
CDKN1B	Cyclin-Dependent Kinase Inhibitor 1B
CDKN1C	Cyclin-Dependent Kinase Inhibitor 1C
cDNA	Complementary DNA
CDX2	Caudal type homeobox 2
CHC	Chronic hepatitis c
CK	Cytokeratin
CLD	Chronic liver disease
CoH	Canals of Herring
CSC	Cancer stem cells
CSL	CBF1, Suppressor of Hairless, Lag-1
Ct	Cycle threshold
CYP3A4	Cytochrome P450, family 3, subfamily A, polypeptide 4
DGCR8	DiGeorge syndrome critical region gene 8
DHS	Demographic and Health Survey