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Education, Appointments and Honors

- BS University of Maryland, 1959
- MD, CM McGill University, 1963
- FRCPC Internal Medicine, 1970

- McMaster University faculty, 1970-2002
- Medical Research Council of Canada Scholar, 1971-1976
- *BLOOD* Editorial Board, 1980-1984
- NIH Hematology Study Section, 1987-1991
- Chair, Medical Advisory Board, Thalassemia Foundation of Canada, 2000-2002

- American Society for Clinical Investigation, elected in 1980
- Association of American Physicians, elected in 1991
- "The Best Doctors in America" 2007-2008

Research Interests

Throughout his academic career, Dr. Chui has maintained a keen interest in the developmental biology of erythropoiesis in health and disease. In the 70's, he studied the developmental cell biology and pathophysiology of anemic mutant mice, particularly that of the *Steel* mutation, now known to be caused by aberrant *Steel* factor, or stem cell factor. During the 80's, Dr. Chui concentrated on the study of hemoglobin ontogeny in mice and in man. He discovered that human embryonic hemoglobins persist throughout intrauterine life, and even into adulthood in some hereditary disorders.

In the 90's, Dr. Chui applied molecular biology techniques to study human diseases. He was the Founding Director of the Provincial Hemoglobinopathy DNA Diagnostic Laboratory in Ontario, Canada, and contributed to the study of thalassemias and hemoglobinopathies, including a novel diagnostic strategy applicable for population screening to detect α-thalassemia carriers. His laboratory cloned and characterized three then novel genes found in erythroid cells: *Nrf 2, Hn1,* and *Ermap.*

Since joining the Boston University in 2003, Dr. Chui has established another successful Hemoglobin Diagnostic Reference Laboratory, to which patients' samples have been referred from throughout Massachusetts, the United States, and beyond. It is a repository for unusual or novel globin gene mutations, some of which form the basis for further laboratory research. Dr. Chui continues to pursue issues related to thalassemia and population health. Concurrently, Dr. Chui is engaged in a large genetic association research project using SNP genotyping in β-thalassemia patients and their family members to search for hereditary factors that regulate Hb F production.

Selected Publications

Dr. Chui has over 150 publications, and has successfully collaborated with investigators in the United States, Canada, and abroad.

1. Chui DHK, Djaldetti M, Marks PA, Rifkind RA.
   Erythropoietin effects on fetal mouse erythroid cells. I. Cell population and hemoglobin synthesis.
   J Cell Biol. 51: 585-595, 1971.

2. Chui DHK, Russell ES.
   Fetal erythropoiesis in steel mutant mice. I. A morphological study of erythroid cell development in fetal liver.
   Dev Biol. 40: 256-269, 1974.

3. Chui DHK, Liao S-K, Walker K.
   Fetal erythropoiesis in steel mutant mice. III. Defect in differentiation from BFU-E to CFU-E during early development.
   Blood. 51: 539-547, 1978.

4. Brotherton TW*, Chui DHK, Gauldie J, Patterson M.
   Hemoglobin ontogeny during normal mouse fetal development.
   Proc Natl Acad Sci USA. 76: 2853-2857, 1979.

5. Chui DHK, Wong SC, Enkin MW, Patterson M, Ives RA.
   Proportion of fetal hemoglobin synthesis decreases during erythroid cell maturation.
   Proc Natl Acad Sci USA. 77: 2757-2761, 1980.

6. Wong PMC*, Clarke BJ, Carr DH, Chui DHK.
   Adult hemoglobins are synthesized in erythroid colonies in vitro derived from murine circulating hemopoietic progenitor cells during embryonic development.
   Proc Natl Acad Sci USA. 79: 2952-2956, 1982.

7. Chung S-W*, Wong SC, Clarke BJ, Patterson M, Walker WHC, Chui DHK.
   Human embryonic ζ-globin chains in adult patients with α-thalassemias.
   Proc Natl Acad Sci USA. 81: 6188-6191, 1984.

8. Chui DHK, Wong SC, Chung S-W*, Patterson M, Bhargava S, Poon M-C.
   Embryonic ζ-globin chains in adults: A marker for α-thalassemia-1 haplotype due to a >17.5 kb deletion.
   N Engl J Med. 314: 76-79, 1986.

9. Wong PMC*, Chung S-W*, Reicheld SM, Chui DHK.
   Hemoglobin switching during murine embryonic development: Evidence for two populations of embryonic erythropoietic progenitor cells.
   Blood. 67: 716-721, 1986.

10. Wong PMC*, Chung S-W, Chui DHK, Eaves CJ.
    Properties of the earliest clonogenic hemopoietic precursors to appear in the developing murine yolk sac.
    Proc Natl Acad Sci USA. 83: 3851-3854, 1986.

11. Toles JT*, Chui DHK, Belbeck LW, Starr E, Barker JE.
    Hemopoietic stem cells in murine embryonic yolk sac and peripheral blood.
    Proc Natl Acad Sci USA. 86: 7456-7459, 1989.

12. Chui DHK, Patterson M, Dowling CE, Kazazian Jr HH, Kendall AG.
    Hemoglobin Bart's disease in an Italian boy: Interaction between α-thalassemia and hereditary persistence of fetal hemoglobin.
    N Engl J Med. 323: 179-182, 1990.

13. Tang W*, Luo H-Y*, Eng B, Waye JS, Chui DHK.
    A simple immunocytological test for detecting adult carriers of the ($--^{SEA}$ /) deletional α-thalassemia.
    Lancet. 342: 1145-1147, 1993.

14. Chui DHK, Tang W*, Orkin SH.
    cDNA cloning of murine *Nrf 2* gene, coding for a *p45 NF-E2* related transcription factor.
    Biochem Biophys Res Commun. 209: 40-46, 1995.

15. Lau Y-L, Chan L-C, Chan Y-YA, Ha S-Y, Yeung C-Y, Waye JS, Chui DHK.
    Prevalence and genotypes of α- and β-thalassemias in Hong Kong: Implications for population screening.
    N Engl J Med. 336: 1298-1301, 1997.

16. Chui DHK, Waye JS.
    Hydrops fetalis caused by α-thalassemia: An emerging health care problem.
    Blood. 91: 2213-2222, 1998.

17. Chui DHK, Hardison R, Riemer C, Miller W, Carver MFH, Molchanova TP, Efremov GD, Huisman THJ.
An electronic database of human hemoglobin variants on the World Wide Web.
Blood. 91: 2643-2644, 1998.

18. Chui DHK, Dover GJ.
Sickle cell disease: no longer a single gene disorder.
Curr Opin Pediatr. 13: 22-27, 2001.

19. Lorey F, Cunningham G, Vichinsky E, Lubin BH, Witkowska HE, Matsunaga A, Azimi M, Sherwin J, Eastman J, Farina F, Waye JS, Chui DHK.
Universal newborn screening for Hb H disease in California.
Genet Test. 5: 93-100, 2001.

20. Lorey F, Charoenkwan P, Witkowska HE, Lafferty J, Patterson M, Eng B, Waye JS, Finklestein JZ, Chui DHK.
Hb H hydrops foetalis syndrome: A case report and review of literature.
Br J Haematol. 115: 72-78, 2001.

21. Su Y-Y*, Gordon CT, Ye T-Z*, Perkins AC, Chui DHK.
Human ERMAP: an erythroid adhesion/receptor transmembrane protein.
Blood Cells Mol Dis. 27: 938-949, 2001.

22. Chiu RWK, Lau TK, Leung TN, Chow KYK, Chui DHK, Lo YMD.
Prenatal exclusion of β thalassaemia major by examination of maternal plasma.
Lancet. 360: 998-1000, 2002.

23. Chui DHK, Fucharoen S, Chan V.
Hemoglobin H disease: not necessarily a benign disorder.
Blood. 101: 791-800, 2003.

24. Ding C, Chiu RWK, Lau TK, Leung TN, Chan LC, Chan AYY, Charoenkwan P, Ng ISL, Law H-Y, Ma ESK, Xu X, Wanapirak C, Sanguansermsri T, Liao C, Ai MATJ, Chui DHK, Cantor CR, Lo YMD.
MS analysis of single-nucleotide differences in circulating nucleic acids: Application to noninvasive prenatal diagnosis.
Proc Natl Acad Sci USA. 101: 10762-10767, 2004.

25. Lau ET, Kwok YK, Luo HY, Leung KY, Lee CP, Lam YH, Chui DHK, Tang MHY.
Simple non-invasive prenatal detection of Hb Bart's disease by analysis of fetal erythrocytes in maternal blood.
Prenat Diagn. 25: 123-128, 2005.

26. Andersson BAR*, Wering MEL*, Luo H-Y, Basran RK*, Steinberg, MH, Smith HP, Chui DHK.
Sickle cell disease due to compound heterozygosity for Hb S and a novel 7.7 Kb β-globin gene deletion.
Eur J Haematol. 78: 82-85, 2007.

27. Gibney GT*, Panhuysen CIM, So JCC, Ma ESK, Ha SY, Li CK, Lee ACW, Li CK, Yuen HL, Lau YL, Johnson DM, Farrell JJ, Bisbee AB, Farrer LA, Steinberg MH, Chan LC, Chui DHK.
Variation and heritability of Hb F and F-cells among β-thalassemia heterozygotes in Hong Kong.
Am J Hematol. 83: 458-464, 2008.

28. Chen ZY, Luo H-Y, Basran RK*, Hsu T-H*, Mang DWH*, Nuntakarn L*, Rosenfield CG, Patrinos GP, Hardison RC, Steinberg MH, Chui DHK.
A T>G transversion at NT −567 upstream of *HBG2* in a GATA-1 binding motif is associated with elevated HbF.
Mol Cell Biol. 28: 4386-4393, 2008.

29. Sedgewick AE, Timofeev N, Sebastiani P, So JCC, Ma ESK, Chan LC, Fucharoen G, Fucharoen S, Barbosa CG, Vardarajan BN, Farrer LA, Baldwin CT, Steinberg MH, Chui DHK.
***BCL11A* is a major HbF quantitative trait locus in three different populations with β-hemoglobinopathies.**
Blood Cells Mol Dis. 41: 255-258, 2008.

30. Chui DHK, Steinberg MH.
Laboratory diagnosis of hemoglobinopathies and thalassemias.
In: *Hematology: Basic Principles and Practice, 5th edition. Hoffman R, Benz Jr EJ, Shattil SJ, Furie B, Silberstein LE, McGlave P, Heslop HE. (eds.) Elsevier, Philadelphia, pp. 525-533, 2009.*

31. Wilcox I*, Boettger K*, Greene L*, Malek A, Davis L, Steinberg MH, Luo H-Y, Chui DHK.
Hemoglobin Kenya composed of α- and (Aγβ)-fusion-globin chains, associated with hereditary persistence of fetal hemoglobin.
Am J Hematol. 84: 55-58, 2009.

32. Chen ZY, Luo H-Y, Steinberg MH, Chui DHK.
BCL11A represses *HBG* transcription in K562 cells.
Blood Cells Mol Dis. 42: 144-149, 2009.

***** Graduate student, post-doctoral fellow, or medical resident in Dr. Chui's laboratory