

BETA THAL SHORT PROGRAM

VARIANT Library:
Abnormal Hb Candidate List At-A-Glance

RT Range	Actual RT	Candidate(s)	Expected % in Adult Heterozygote	β or α variant	Stability	Remarks
0.0-0.5	0.2	Bart's		γ_4	-	Bart's will be present in cord blood of newborns with α -thalassemia. The level will vary depending on the genotype. Bart's may also be present in adults with HbH disease. The reference chromatogram is a homozygote sample.
	0.5	H		β_4	Unstable	H will be present in adult patients with HbH disease (severe form of α -thalassemia). Levels will range from 5-30%.
0.6-1.0	-	-	-	-	-	-
1.1-1.5	1.1	Okayama	~40-50%	β	Normal	
	1.2	F		-	Normal	
	1.2	K-Woolwich	~20-40%	β	Normal	Observed in persons of African descent.
	1.3	Geelong	~15-20%	β	Mildly Unstable	
	1.3	I-Philadelphia	~20-30%	α	Normal	Also known as Hb1.
	1.5	Camden	~35-50%	β	Normal	
	1.5	J-Norfolk	~20-30%	α	Normal	
1.6-2.0	1.6	Grady	~5-10%	α	Unstable	Secondary peaks are possible due to its instability. Reference chromatogram is a homozygote sample. Observed in person of African descent.
	1.6	N-Baltimore	~40-60%	β	Normal	
	1.7	Fannin-Lubbock	~40-50%	β	Unstable	Observed in persons of Hispanic/Spanish descent.
	1.7	J-Baltimore	~40-50%	β	Normal	Observed in persons of Southeast Asian descent.

	1.9	J-Bangkok	~40-50%	β	Normal	
2.1-2.5	2.1	Athens-Georgia	~45-55%	β	Normal	Observed in persons of Mediterranean descent.
	2.2	Buenos Aires	~40-50%	β	Unstable	Secondary peaks are possible.
	2.3	Köln		β	Unstable	Secondary peaks are possible (e.g., characteristic multiple small peaks at RT 4.8). Observed in persons of various geographical descent.
	2.4	A	~40-50%	-	Normal	
2.6-3.0	2.9	P-Galveston	~40-50%	β	Normal	Observed in persons of African descent.
3.1-3.5	3.3	Deer Lodge	~30-50%	β	Normal	
	3.4	D-Iran	~5-15%	β	Normal	
	3.5	Lepore-Boston	~20-30%	$\delta\beta$	Normal	Lepore is a $\Delta\beta$ fusion chain hemoglobin. Observed in persons of Mediterranean descent. Frequency of Lepore is approximately 1/25th the frequency of beta thal carrier.
3.6-4.0	3.6	E	~2.5-35%	β	Mildly Unstable	Approximately 30% of E cases are associated with alpha thalassemia which will decrease the total %HbE. Observed in persons of Southeast Asian descent.
	3.6	Osu-Christiansborg	~40-50%	β	Normal	
	3.7	G-Copenhagen	~40-50%	β	Normal	
	3.9	Korle-Bu		β	Normal	Observed in persons of South American descent.
	4	Osler	~25-35%	β	Normal	Osler will exhibit increases O ₂ affinity with erythrocytosis.
4.1-4.5	4.1	G-Norfolk	~15-25%	α	Normal	
	4.1	G-Philadelphia	~20-40%	α	Normal	G-Philadelphia is frequently linked to alpha thalassemia. Levels will vary. Observed in persons of African descent.

	4.2	D-Los Angeles	~35-45%	β	Normal	Observed in persons of Asian descent.
	4.4	Stanleyville II	~20-30%	α	Normal	Observed in persons of African descent.
	4.5	Manitoba	~15-25%	α	Mildly Unstable	
	4.5	S	~30-40%	β	Normal	S is the most frequently observed abnormal hemoglobin. Observed in persons of African descent.
	4.5	Queens	~10-20%	α	Mildly Unstable	Observed in persons of Asian descent.
4.6-5.0	4.6	G-San Jose	~30-40%	β	Mildly Unstable	Observed in persons of Mediterranean descent.
	4.6	Q-Thailand	~30-40%	α	Normal	Observed in persons of Asian descent.
	4.6	Handsworth	~10-30%	α	Normal	Observed in persons of Asian and Middle Eastern descent.
	4.6	Montgomery	~15-25%	α	Normal	
	4.7	Q-India	~10-20%	α	Normal	
	4.7	Hasharon	~10-20%	α	Mildly Unstable	Observed in persons of Mediterranean descent.
	4.8	O-Indonesia	~20-30%	α	Mildly Unstable	
	4.8	O-Arab	~30-40%	α	Normal	Observed in persons of Mediterranean descent.
	4.9	Constant Spring	~1.5%	α	Unstable	Constant Spring (CS) has an elongated α chain. CS interacts as thalassemic gene. CS is subject to proteolytic degradation to produce multiple minor peaks. Observed in persons of Southeast Asian descent.
	4.9	Agenogi	~30-40%	β	Mildly Unstable	Agenogi has an associated large peak in the A ₂ window.
	4.9	Siriraj	~30-40%	β	-	Observed in persons of Mediterranean descent.
	5	C	~20-50%	β	Normal	
5.1-5.5	-	-	-	-	-	-