

Krevní obrazy a diferenciální rozpočty leukocytů

(příklady hodnocení přístrojových výsledků)

Bourková L., OKH FN Brno



Při hodnocení sledovat

- vyšetření poprvé / opakovaně
- typ diagnózy
- pacient: ambulantní, lůžkové odd., JIP...
- vyšetření rutinní, statimové, speciální, vitální indikace
- výsledky jsou mimo referenční rozmezí
- náhlé změny v KO
- interference
- patologická hlášení
- správný odběr, typ vyšetřovaného materiálu

Vysvětlivky: M/F muž/žena, ✓ hodnoty fyziologické, ↓↑ hodnoty nízké/vysoké, ↔ hodnoty hraniční, ↘ patologie v grafu,
IG nezralé granulocyty, BD tyče NE, BL blasty, VL variantní LY, PLT_{o/i} optická/impedanční analýza PLT

Laboratorní informační systém

Pojišťovna...111	VZP	BM...
Oddělení.....33293	Zo..E
Lékař.....72100059	
Diagnóza.....D471		Výška [cm]
F1 Komentář.....		Váha [kg]
---Dat.nar.----- 5/ 9/1943-Ž- (M/Ž)-----			
F9 VYŠETŘENÍ.....		F3 Sign(+-) *	11636/21/02

KO = 0	MPV = 9.30	MONO= 1.08	Eos9= 2.00	NRBC= 9	LGLh= 4
WBC = 9.18	PCT = 2.80	EOS = 0.13	Bas9= 3.00	HodE=polychr	= 0.26
RBC = 3.85	PDW = 10.00	BASO= 0.31	META= 8.00	HodL=hypogra	AKRE=
HGB = 115.00	NEU%= 69.10	NRBC= 0.71	MYEL= 6.00	HodL=	AU =XE-5000
HCT = 0.33	LYM%= 14.30	NR/W= 7.70	PROM= 0.00	HodP=anizo P	KOME=Left Sh
MCV = 86.20	MON%= 11.80	Dif	MYBL= 0.00	Dif:=RNDr. L	= 0
PLT = 299.00	EOS%= 1.40	Neu9= 52.00	Prol= 0.00	Dif:=	K LA= 198
MCH = 29.90	BAS%= 3.40	Ban9= 13.00	Plb = 0.00	Dif:=	K S = 44
MCHC= 346.00	NEU = 6.35	Lym9= 12.00	NeBu= 0.00	H100= 100.00	SUIT= 12939
RDW = 17.80	LYM = 1.31	Mon9= 3.00	NeBl= 1.00	LGL = 0.367	UPO =Výsledk
===== 119===== 130===== 144===== 198===== 44=====					

onec=ESC F2=Tisk F4=Archiv F8=Do Pošty F9=Změny výsledků Listování=PgUp,PgD

Laboratorní informační systém – historie vyšetření

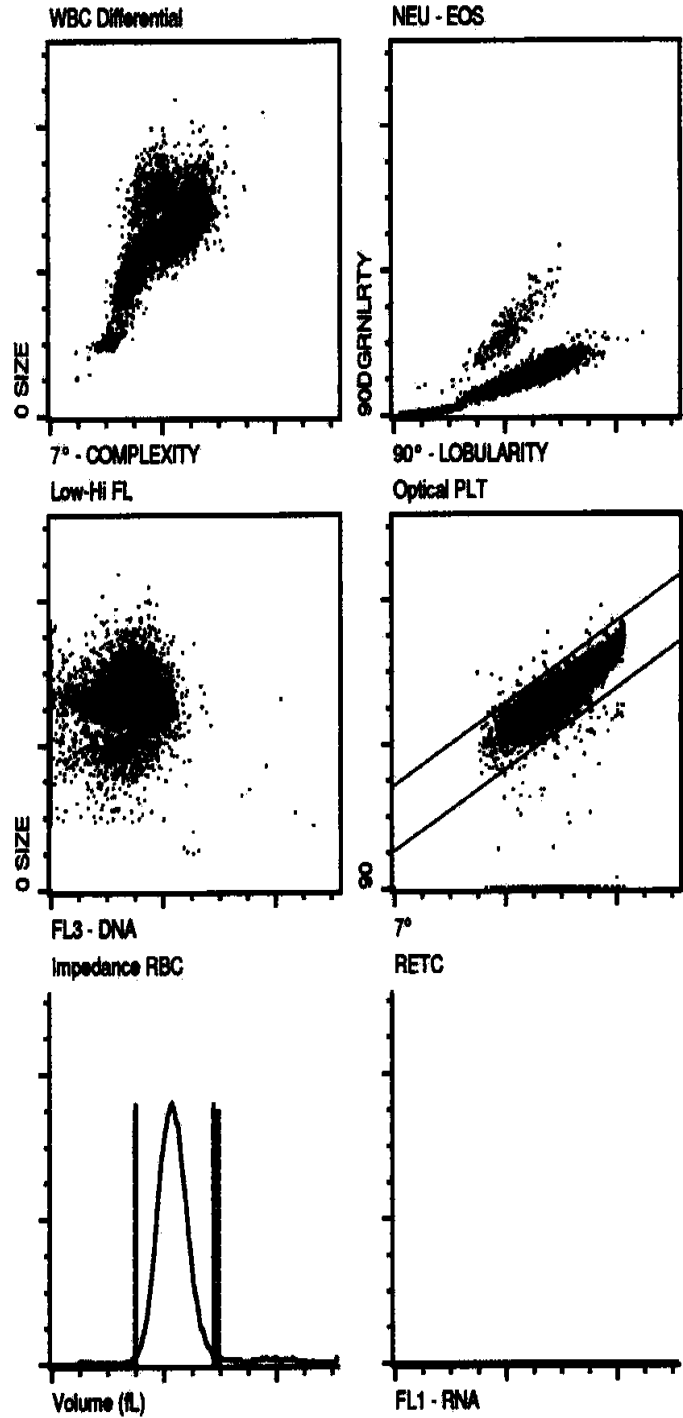
21/02/2014	10/01/2014	27/11/2013	27/11/2013	27/11/2013	25/10/2013
WBC = 9.18	WBC = 10.30		WBC = 11.30		WBC = 9.33
RBC = 3.85	RBC = 3.52		RBC = 3.68		RBC = 3.36
HGB = 115.00	HGB = 110.00		HGB = 108.00		HGB = 102.00
HCT = 0.33	HCT = 0.30		HCT = 0.31		HCT = 0.29
MCV = 86.20	MCV = 86.10		MCV = 84.50		MCV = 86.30
PLT = 299.00	PLT = 362.00		PLT = 423.00		PLT = 352.00
MCH = 29.90	MCH = 31.10		MCH = 29.30		MCH = 30.40
MCHC= 346.00	MCHC= 361.00		MCHC= 347.00		MCHC= 352.00
RDW = 17.80	RDW = 16.90		RDW = 17.00		RDW = 17.40
MPV = 9.30	MPV = 7.18		MPV = 6.95		MPV = 8.90
PCT = 2.80	PCT = 2.60		PCT = 2.94		PCT = 3.10
PDW = 10.00	PDW = 16.70		PDW = 17.00		PDW = 9.30
NEU = 6.35	NEU = 7.82		NEU = 7.35		NEU = 6.63
LYM = 1.31	LYM = 1.54		LYM = 2.66		LYM = 1.14
MONO= 1.08	MONO= 0.82		MONO= 1.10		MONO= 1.11
EOS = 0.13	EOS = 0.09		EOS = 0.11		EOS = 0.17
BASO= 0.31	BASO= 0.01		BASO= 0.04		BASO= 0.28
NEU%= 69.10	NEU%= 76.00		NEU%= 65.30		NEU%= 71.10
LYM%= 14.30	LYM%= 14.90		LYM%= 23.60		LYM%= 12.20
MON%= 11.80	MON%= 8.00		MON%= 9.81		MON%= 11.90
EOS%= 1.40	EOS%= 0.90		EOS%= 0.95		EOS%= 1.80
Komentář					
Konec=ESC F2=Tisk F5=Filtr metod <- ->					

DOB:
 Sex:
 Doctor:
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	9.36	10e9/L		
NEU	5.55		%N	59.3
LYM	2.40		%L	25.6
MONO	.896		%M	9.57
EOS	.450		%E	4.81
BASO	.066		%B	.703

RBC	4.28	10e12/L		
HGB	138.	g/L		
HCT	.373	L/L		
MCV	87.1	fL		
MCH	32.3	pg		
MCHC	371.	g/L		
RDW	11.6	%CV		
RETc	---	10e9/L	%R	---
IRF	---			
NRBC	0.00	10e9/L	NR/W	0.00

PLT	190.	10e9/L
MPV	8.53	fL



1M

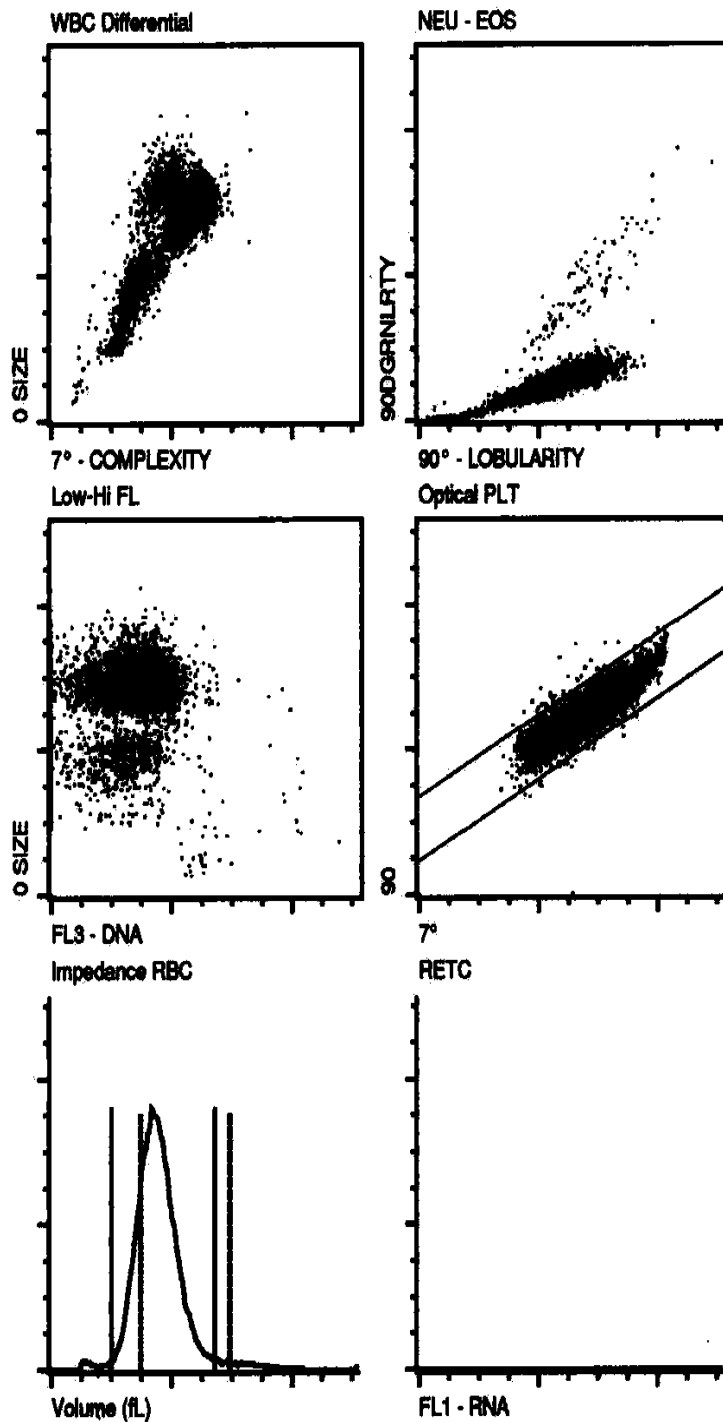
KO v normě



DOB: 06/11/71
 Sex: F
 Doctor: 0589/26/04/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	8.02	10e9/L	✓	
NEU	5.34	%N	66.6	
LYM	1.61	%L	20.1	↔
MONO	.836	%M	10.4	
EOS	.171	%E	2.14	
BASO	.060	%B	.749	

RBC	3.97	10e12/L	✓	
HGB	88.7	g/L		
HCT	28.2	L/L		
MCV	71.1	fL		
MCH	22.3	pg		
MCHC	314.	g/L		
RDW	17.4	%CV	↑	
RETc	---	10e9/L	%R	---
IRF	---			
NRBC	0.00	10e9/L	NR/W	0.00
PLT	499.	10e9/L	↑	
MPV	9.05	fL		



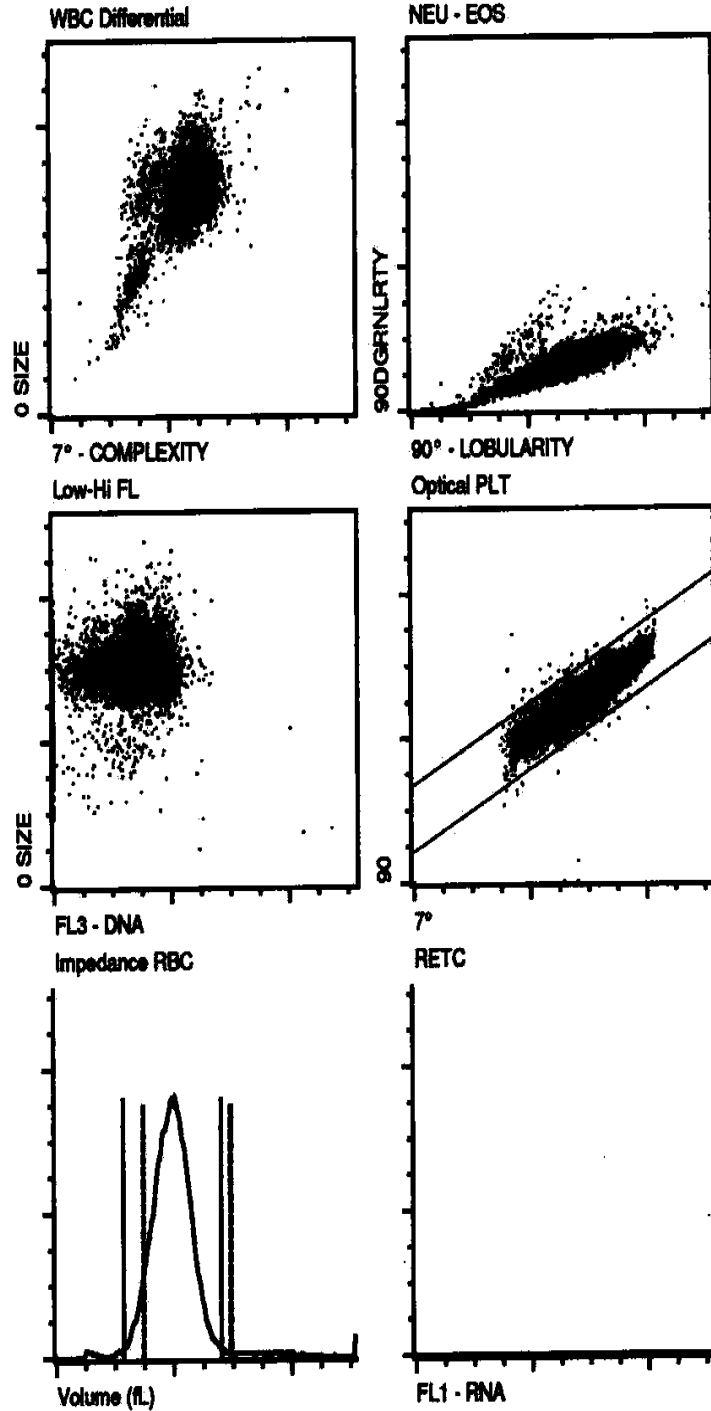
2F

patologický KO

DOB: 09/05/56
 Sex: F
 Doctor: 0542/26/04/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	<u>25.4</u>	10e9/L	↑	%N	<u>86.3s</u>	↑
NEU	<u>21.9s</u>			%L	<u>5.06</u>	↓
LYM	1.28			%M	6.19	
MONO	<u>1.57</u>			%E	2.43	
EOS	<u>.616</u>			%B	.055	
BASO	.014					

RBC	<u>3.08</u>	10e12/L	↓	%R	---
HGB	<u>82.1</u>	g/L			
HCT	<u>244</u>	L/L			
MCV	<u>79.3</u>	fL			
MCH	<u>26.7</u>	pg			
MCHC	<u>337.</u>	g/L			
RDW	<u>15.5</u>	%CV	↔		
RETC	---	10e9/L			
IRF	---				
NRBC	0.00	10e9/L		NR/W	0.00
PLT	256.	10e9/L	✓		
MPV	8.75	fL			



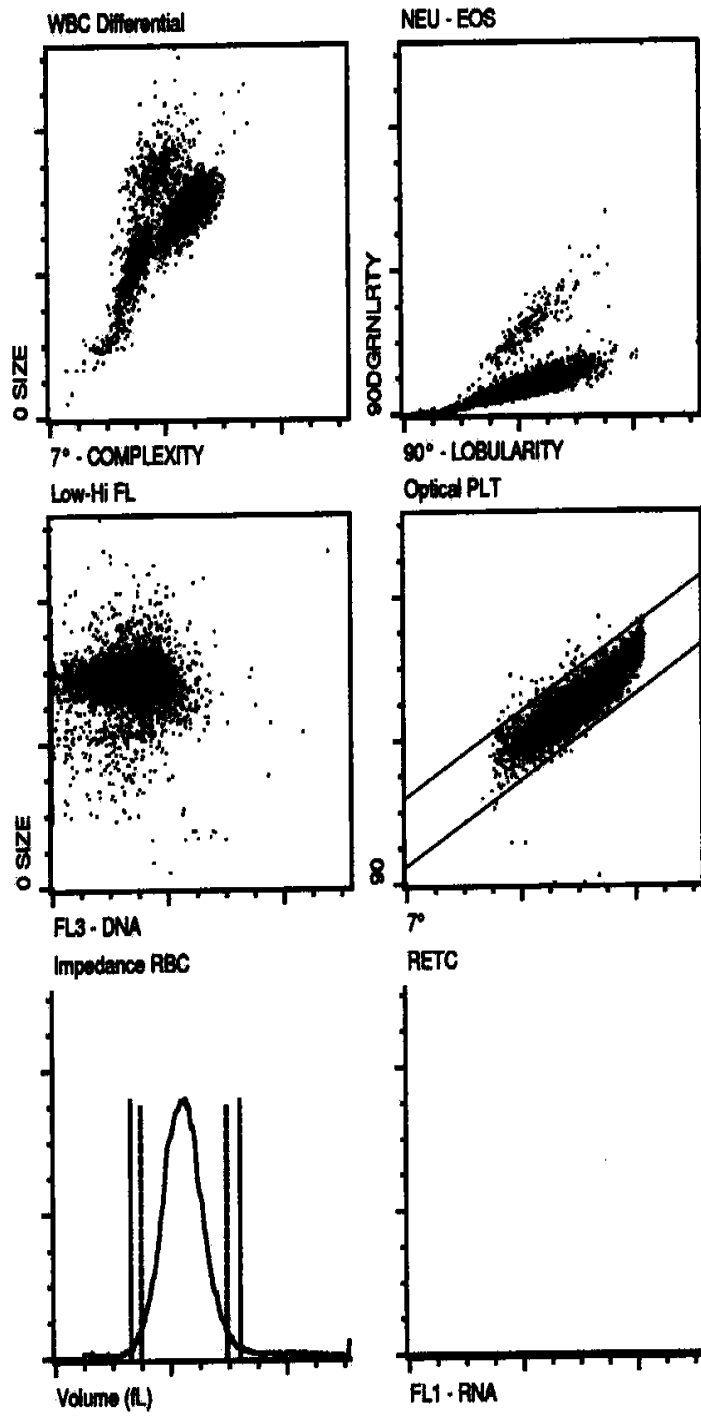
3F

patologický KO

DOB: 26/02/46
 Sex: M
 Doctor: 0509/26/04/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	<u>11.6</u>	10e9/L ↑		
NEU	<u>9.31</u>		%N	<u>80.1</u>
LYM	<u>1.30</u>		%L	<u>11.2</u> ↓
MONO	<u>.526</u>		%M	<u>4.53</u>
EOS	<u>.461</u>		%E	<u>3.97</u>
BASO	<u>.027</u>		%B	<u>.233</u>

RBC	<u>2.94</u>	10e12/L	↓	
HGB	<u>86.3</u>	g/L		
HCT	<u>.263</u>	L/L	↓	
MCV	<u>89.3</u>	fL	✓	
MCH	<u>29.3</u>	pg		
MCHC	<u>329.</u>	g/L		
RDW	<u>15.4</u>	%CV	↔	
RETC	---	10e9/L		%R ---
IRF	---			
NRBC	<u>0.00</u>	10e9/L		NRW <u>0.00</u>
PLT	<u>99.0</u>	10e9/L	↓	
MPV	<u>10.7</u>	fL		



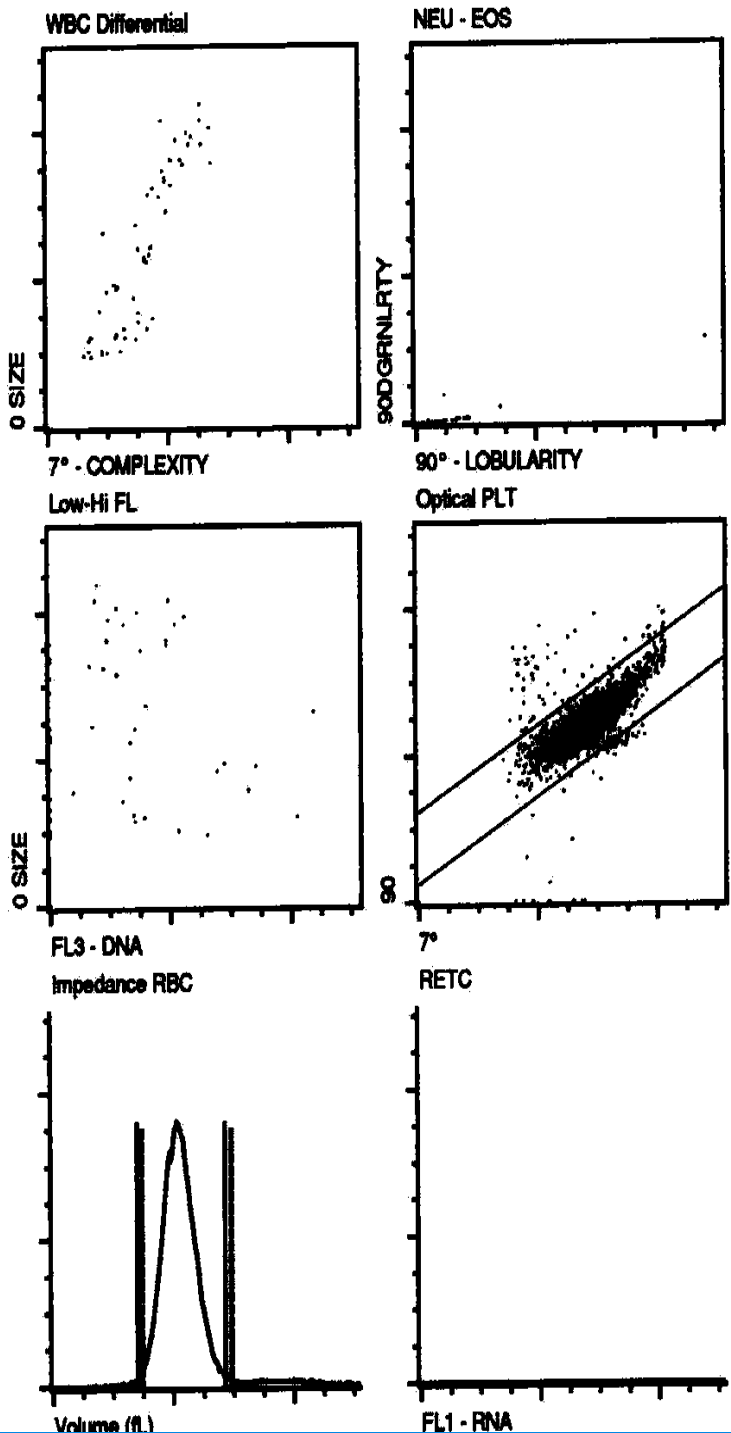
4M

patologický KO

DOB: 14/02/48
 Sex: F
 Doctor: 0582/26/04/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	<u>.068</u>	10e9/L	↓	%N	<u>9.52</u>	↓
NEU	<u>.006</u>			%L	<u>66.7s</u>	↑
LYM	<u>.045s</u>			%M	<u>23.8s</u>	↑
MONO	<u>.016s</u>			%E	0.00	
EOS	0.00			%B	0.00	
BASO	0.00					

RBC	<u>3.77</u>	10e12/L	↓	%R	---
HGB	<u>112.</u>	g/L	↓		
HCT	<u>319</u>	L/L	↓		
MCV	84.8	fL			
MCH	29.8	pg			
MCHC	351.	g/L	✓		
RDW	12.5	%CV			
RETc	---	10e9/L			
IRF	---				
NRBC	0.00	10e9/L		NRW	0.00
PLT	<u>21.8</u>	10e9/L	↓		
MPV	<u>10.3</u>	fL	↓		



5F

patologický KO

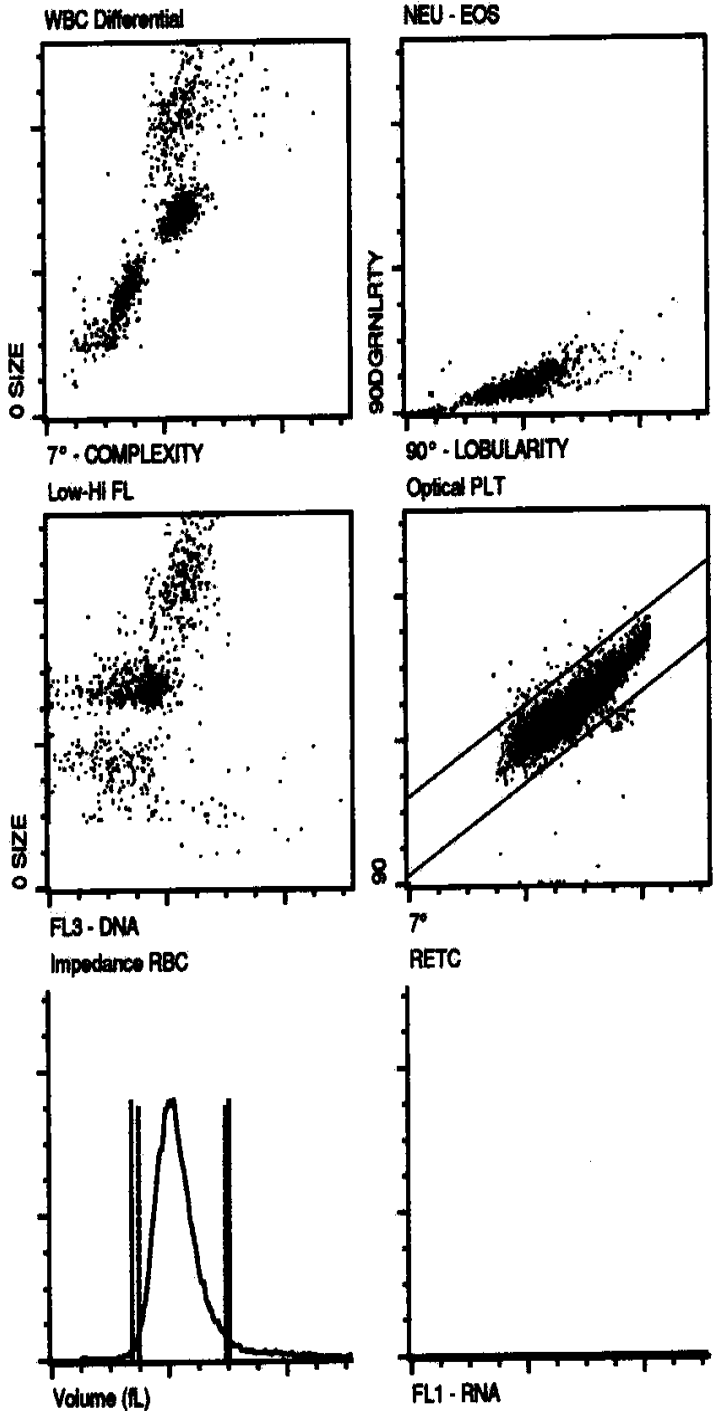
DOB: 19/08/46
 Sex: M
 Doctor: 0579/26/04/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	<u>1.68</u>	10e9/L	↓	%N	68.4s
NEU	<u>1.15s</u>			%L	29.5
LYM	<u>.495</u>			%M	<u>1.49</u>
MONO	<u>.025</u>			%E	.397
EOS	.007			%B	.298
BASO	.005				



RBC	<u>3.31</u>	10e12/L	↓		
HGB	<u>106.</u>	g/L			
HCT	<u>.283</u>	L/L			
MCV	85.4	fL	✓		
MCH	31.9	pg			
MCHC	<u>373.</u>	g/L			
RDW	15.1	%CV		↔	
RETc	---	10e9/L		%R	---
IRF	---				
NRBC	0.00	10e9/L		NRW	0.00

PLT	<u>58.4</u>	10e9/L	↓
MPV	8.47	fL	



7M

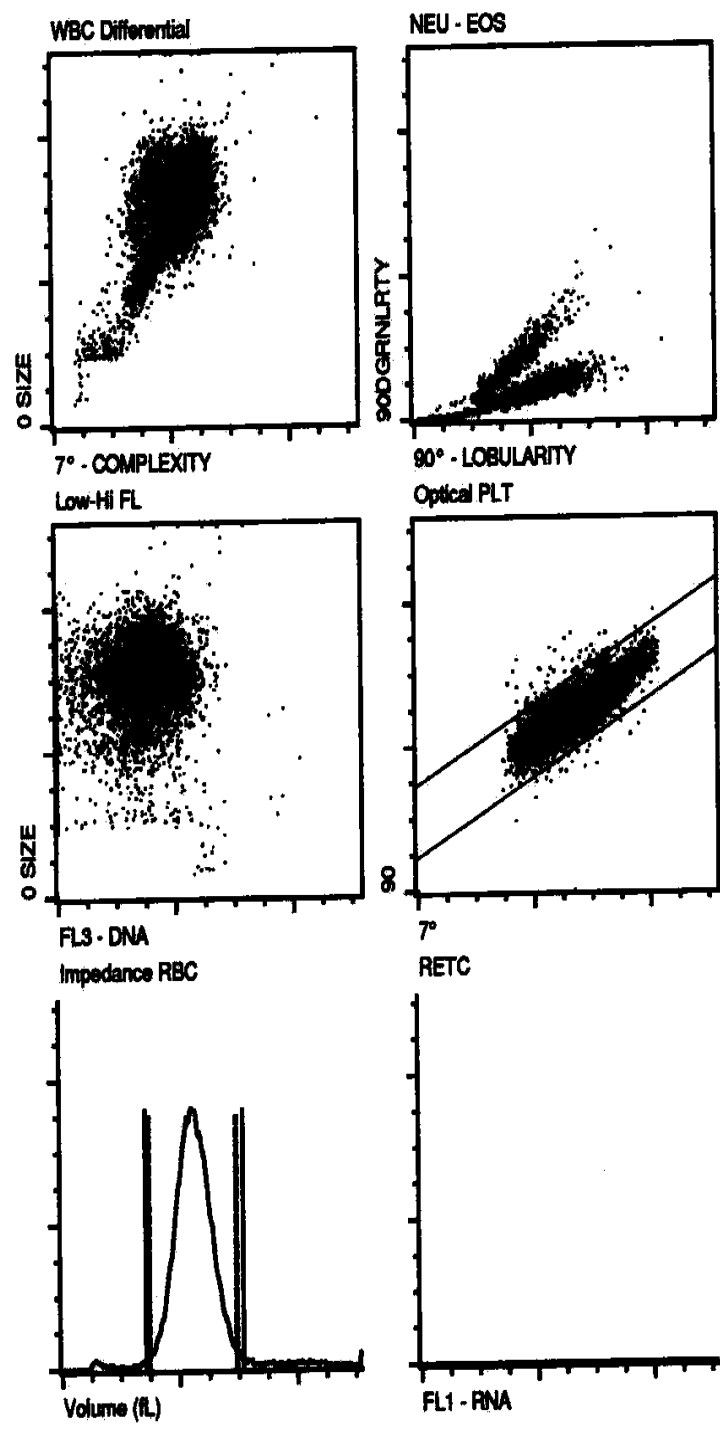
patologický KO

DOB: 13/09/72
 Sex: M
 Doctor: 0514/26/04/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

WBC	<u>15.4</u>	10e9/L	↑	%N	64.6	✓
NEU	<u>9.94</u>			%L	<u>12.2</u>	↓
LYM	1.88			%M	<u>13.1</u>	↑
MONO	<u>2.01</u>			%E	<u>9.94</u>	↑
EOS	<u>1.53</u>			%B	.193	
BASO	.030					

RBC	<u>3.27</u>	10e12/L	↓	%R	---
HGB	<u>101</u>	g/L			
HCT	<u>296</u>	L/L			
MCV	90.6	fL			
MCH	30.7	pg	✓		
MCHC	339.	g/L			
RDW	13.2	%CV			
RETc	---	10e9/L			
IRF	---				
NRBC	0.00	10e9/L		NR/W	0.00

PLT	<u>832</u>	10e9/L	↑
MPV	<u>6.88</u>	fL	



9M

patologický KO

WBC 13.00 + [10^9/L] ↑

WBC IP Message(s)

NEUT	[10^9/L]	[%]
LYMPH	[10^9/L]	[%]
MONO	[10^9/L]	[%]
EO	[10^9/L]	[%]
BASO	[10^9/L]	[%]
IG	[10^9/L]	[%]

RBC	3.01 -	[10^12/L]	↓
HGB	89 -	g/L	
HCT	0.267 -	[Ratio]	
MCV	88.7	fL	
MCH	29.6	pg	✓
MCHC	333	g/L	
RDW-CV	16.2 +	[%]	↑

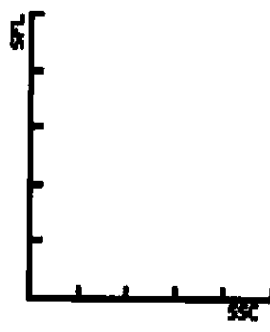
RET	[10^9/L]	[%]
IRF	[Ratio]	
RET-He	pg	
IPF	[%]	
NRBC	[10^9/L]	[/100WBC]

PLT	183 *	[10^9/L]	✓
MPV	13.3 *	fL	↑
PDW	21.9 *	fL	
PCT	0.24 *	[%]	

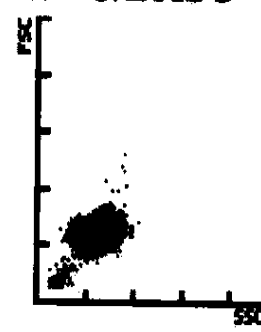
PLT Abn Distribution

PLT Clumps(S)?

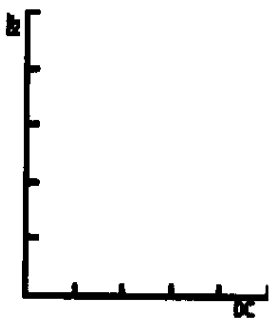
DIFF



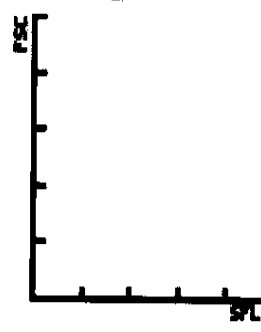
WBC/BASO



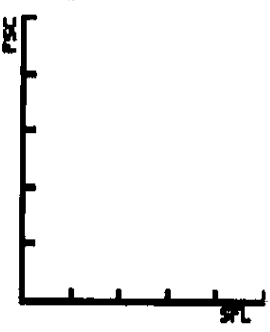
IMI



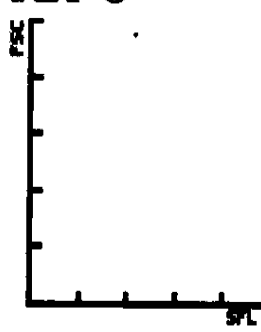
NRBC



RET



PLT-O



RBC



PLT



10M

patologický KO

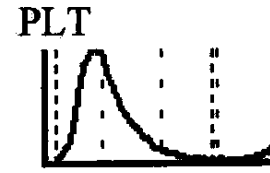
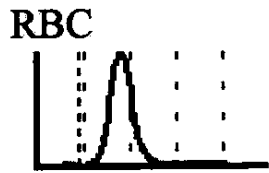
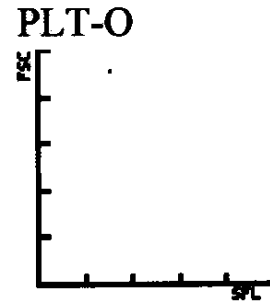
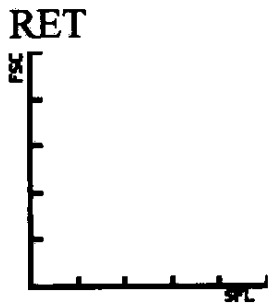
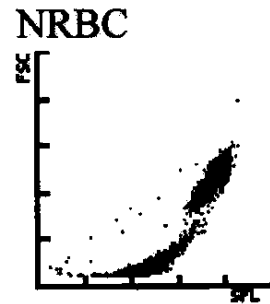
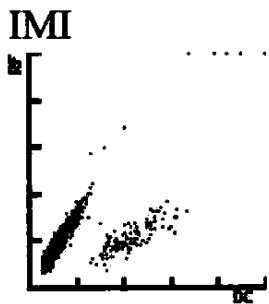
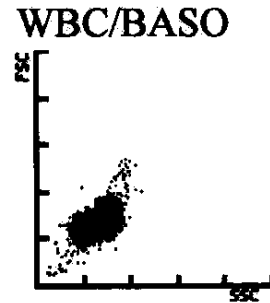
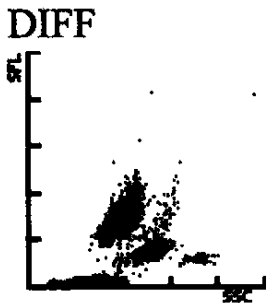
Manual Diff

RBC morf.

SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MAKRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOtin

WBC	8.07	[10 ⁹ /L]	✓	WBC IP Message(s)
NEUT	5.80	[10 ⁹ /L]	71.9	[%]
LYMPH	1.13	[10 ⁹ /L]	14.0	[%]
MONO	0.96	[10 ⁹ /L]	11.9	[%]
EO	0.14	[10 ⁹ /L]	1.7	[%]
BASO	0.04	[10 ⁹ /L]	0.5	[%]
IG	0.15	[10 ⁹ /L]	1.9	[%]
RBC	4.67	[10 ¹² /L]		
HGB	141	[g/L]		
HCT	0.424	[Ratio]		
MCV	90.8	[fL]	✓	
MCH	30.2	[pg]		
MCHC	333	[g/L]		
RDW-CV	12.7	[%]		
RET		[10 ⁹ /L]		[%]
IRF		[Ratio]		
NRBC	0.00	[10 ⁹ /L]	0.0	[/100WBC]
PLT	314	[10 ⁹ /L]		
MPV	11.0	[fL]	✓	
PDW	13.9	[fL]		
PCT	0.035	[L/L]		

zkontrolovat mikroskopem



21M

patologický KO

Manual Diff

RBC morf.

SEG _____ META _____ NORMAL _____ MICRO _____

BAND _____ MYELO _____ POLYCH _____ MAKRO _____

LYMPH _____ PRO _____ HYPOCH _____ ANISO _____

MONO _____ BLAST _____ POIK _____ BASOtip _____

EOSIN _____ VARLY _____ TARGET _____

BASO _____ TOXgran _____ SPHERO _____ NRBC _____

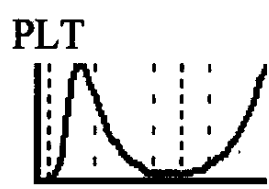
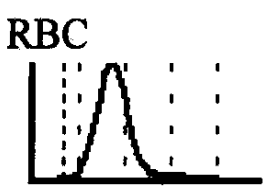
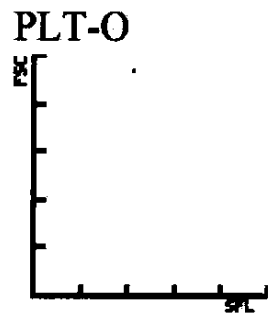
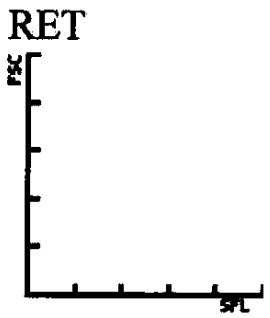
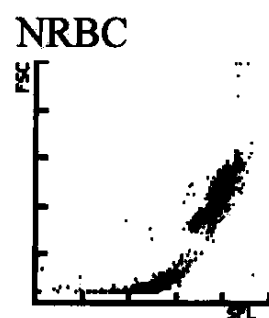
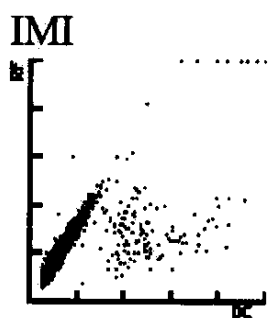
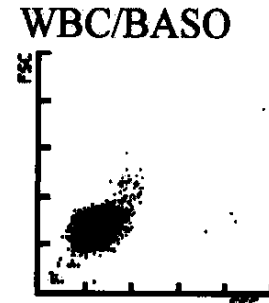
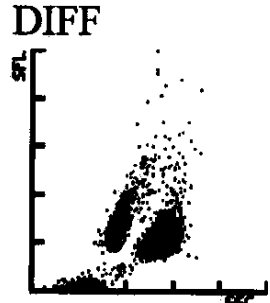
PLT EST _____ PLT morf _____

Comment: _____

DIFF by: _____ Date: _____

patologický KO

WBC	16.57	+ [10 ⁹ /L]	↑	WBC IP Message(s)
NEUT	14.92	* [10 ⁹ /L]	90.1	*[%]
LYMPH	1.38	[10 ⁹ /L]	8.3	[%]
MONO	0.24	[10 ⁹ /L]	1.4	[%]
EO	0.00	* [10 ⁹ /L]	0.0	*[%]
BASO	0.03	[10 ⁹ /L]	0.2	[%]
IG	0.18	[10 ⁹ /L]	1.1	[%]
RBC	3.71	- [10 ¹² /L]	↓	Anisocytosis
HGB	100	- [g/L]	↓	
HCT	0.324	- [Ratio]	↓	
MCV	87.3	[fL]	↓	
MCH	27.0	[pg]	↓	
MCHC	309	- [g/L]	↓	
RDW-CV	18.5	+ [%]	↑	
RET		[10 ⁹ /L]		[%]
IRF		[Ratio]		
NRBC	0.00	[10 ⁹ /L]	0.0	[/100WBC]
PLT	184	[10 ⁹ /L]		
MPV	9.9	[fL]	✓	
PDW	11.5	[fL]		
PCT	0.018	[L/L]		



zkontrolovat mikroskopem

Manual Diff

RBC morf.

SEG META NORMAL MICRO

BAND MYELO POLYCH MAKRO

LYMPH PRO HYPOCH ANISO

MONO BLAST POIK BASOtip

EOSIN VARLY TARGET

BASO TOXgran SPHERO NRBC

PLT EST PLT morf

Comment: _____

DIFF by: _____ Date: _____

WBC	4.12	[10 ⁹ /L]	✓	WBC IP Message(s)
NEUT	1.86	[10 ⁹ /L]	45.2	[%]
LYMPH	0.67	[10 ⁹ /L]	16.3	[%]
MONO	1.57	[10 ⁹ /L]	38.1	[%]
EO	0.01	[10 ⁹ /L]	0.2	[%]
BASO	0.01	[10 ⁹ /L]	0.2	[%]
IG	0.18	[10 ⁹ /L]	4.4	[%]
RBC	3.05	[10 ¹² /L]		
HGB	88	[g/L]		
HCT	0.248	[Ratio]		
MCV	81.3	[fL]		
MCH	28.9	[pg]		
MCHC	355	[g/L]	✓	
RDW-CV	12.9	[%]		
RET		[10 ⁹ /L]		[%]
IRF		[Ratio]		
NRBC	0.00	[10 ⁹ /L]	0.0	[/100WBC]
PLT	21	[10 ⁹ /L]		
MPV	11.1	[fL]		
PDW	14.2	[fL]		
PCT	0.002	[L/L]		

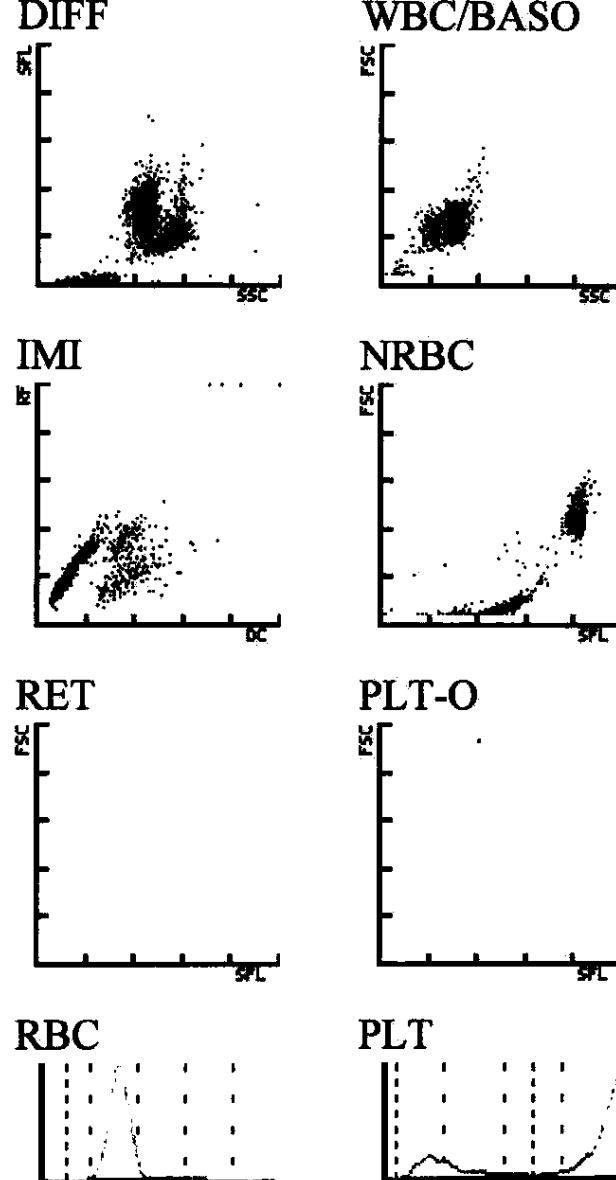
Monocytosis ↑
 IG Present ↑
 Thrombocytopenia ↓

zkontrolovat mikroskopem

Manual Diff

RBC morf.

SEG _____ META _____ NORMAL _____ MICRO _____
 BAND _____ MYELO _____ POLYCH _____ MAKRO _____
 LYMPH _____ PRO _____ HYPOCH _____ ANISO _____
 MONO _____ BLAST _____ POIK _____ BASOtip _____
 EOSIN _____ VARLY _____ TARGET _____
 BASO _____ TOXgran _____ SPHERO _____ NRBC _____
 PLT EST _____ PLT morf _____
 Comment: _____
 DIFF by: _____ Date: _____



23F

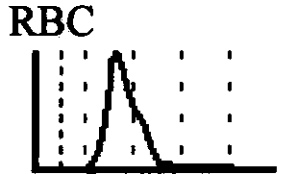
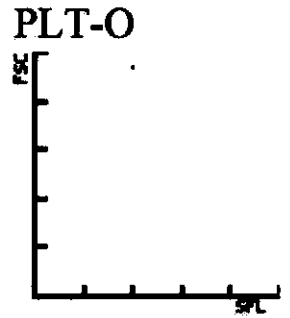
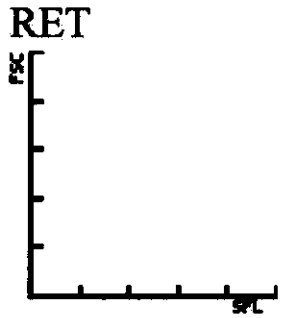
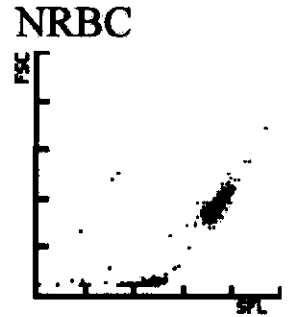
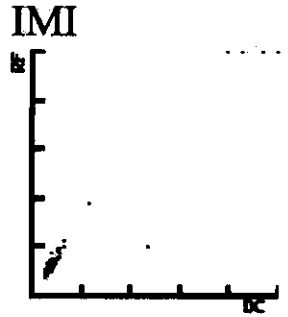
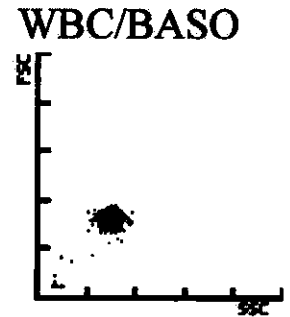
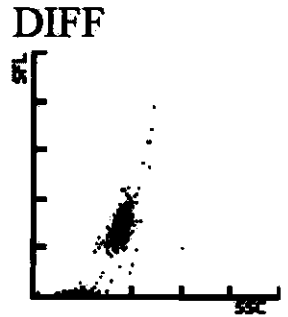
patologický KO



24M

patologický KO

WBC	1.27	-	[10 ⁹ /L]	↑	WBC IP Message(s)
Lymphocytosis					
NEUT	0.00	-	[10 ⁹ /L]	0.0	[%]
LYMPH	1.25	-	[10 ⁹ /L]	98.4	+
MONO	0.02	-	[10 ⁹ /L]	1.6	-%
EO	0.00	-	[10 ⁹ /L]	0.0	-%
BASO	0.00	-	[10 ⁹ /L]	0.0	[%]
IG	0.00	-	[10 ⁹ /L]	0.0	[%]
RBC	2.81	-	[10 ¹² /L]		
HGB	89	-	[g/L]		
HCT	0.256	-	[Ratio]		
MCV	91.1		[fL]		
MCH	31.7		[pg]		
MCHC	348		[g/L]		
RDW-CV	17.3	+	[%]		
RET			[10 ⁹ /L]		[%]
IRF			[Ratio]		
NRBC	0.00	-	[10 ⁹ /L]	0.0	[/100WBC]
PLT	37	-	[10 ⁹ /L]		
MPV	11.4		[fL]		
PDW	12.3		[fL]		
PCT	0.004	-	[L/L]		
Thrombocytopenia					



zkontrolovat mikroskopem

Manual Diff

RBC morf.

SEG _____ META _____ NORMAL _____ MICRO _____

BAND _____ MYELO _____ POLYCH _____ MAKRO _____

LYMPH _____ PRO _____ HYPOCH _____ ANISO _____

MONO _____ BLAST _____ POIK _____ BASOtip _____

EOSIN _____ VARLY _____ TARGET _____

BASO _____ TOXgran _____ SPHERO _____ NRBC _____

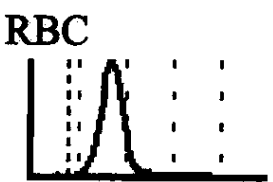
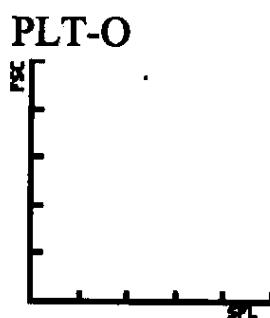
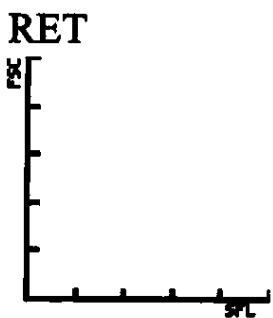
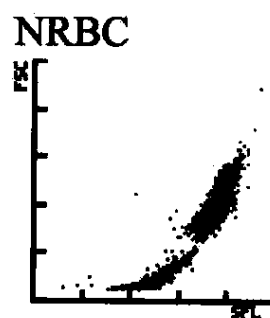
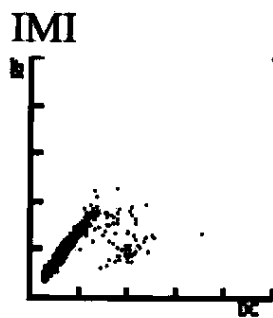
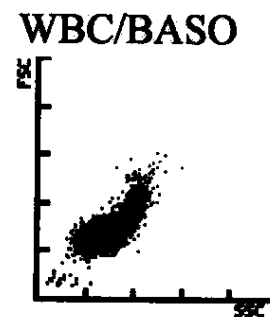
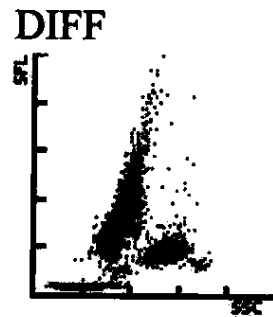
PLT EST _____ PLT morf _____

Comment: _____

DIFF by: _____ Date: _____

patologický KO

WBC	7.77	[10 ⁹ /L]	✓	WBC IP Message(s)
				Lymphocytosis
NEUT	2.26 *	[10 ⁹ /L]	29.1 * [%]	Atypical Lympho? ↓
LYMPH	4.46 *	[10 ⁹ /L]	57.4 * [%]	Abn Lympho/L_Blasts? ↑
MONO	0.73 *	[10 ⁹ /L]	9.4 * [%]	✓
EO	0.05	[10 ⁹ /L]	0.6 [%]	
BASO	0.27 +	[10 ⁹ /L]	3.5 + [%]	↑
IG	0.05	[10 ⁹ /L]	0.6 [%]	↑
RBC	4.27	[10 ¹² /L]		
HGB	124 -	[g/L]		
HCT	0.364 -	[Ratio]		
MCV	85.2	[fL]	✓	
MCH	29.0	[pg]		
MCHC	341	[g/L]		
RDW-CV	13.1	[%]		
RET		[10 ⁹ /L]		[%]
IRF		[Ratio]		
RET-He		[pg]		
IPF		[%]		
NRBC	0.00	[10 ⁹ /L]	0.0	[/100WBC]
PLT	160	[10 ⁹ /L]		
MPV	10.3	[fL]	✓	
PDW	11.9 -	[fL]		
PCT	0.16	[%]		



zkontrolovat mikroskopem

Manual Diff

SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MAKRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOtip
EOSIN	VARLY	TARGET	
BASO	TOXgran	SPHERO	NRBC
PLT EST		PLT morf	

RBC morf.

Comment: _____

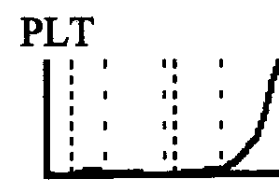
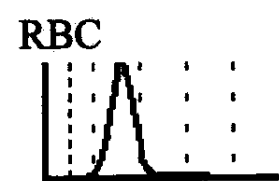
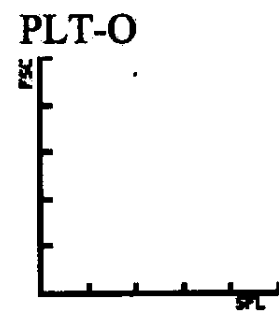
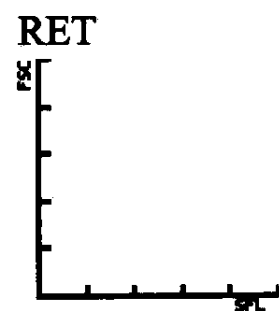
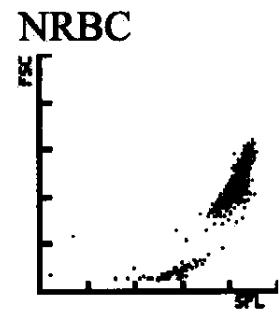
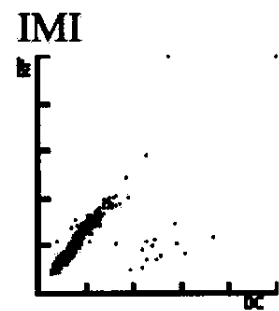
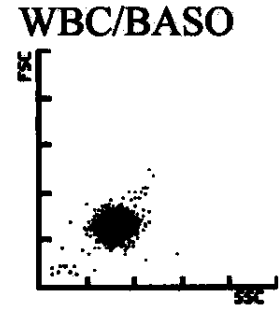
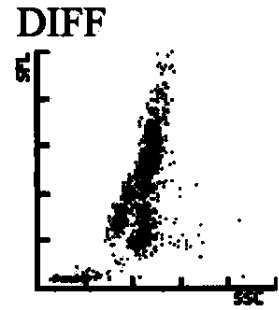
DIFF by: _____ Date: _____

31M

patologický KO

WBC	1.73	-	[10 ⁹ /L]	↓	WBC IP Message(s)
NEUT	0.04	*	[10 ⁹ /L]	2.3	*[%]
LYMPH	0.87	*	[10 ⁹ /L]	50.3	*[%]
MONO	0.82	*	[10 ⁹ /L]	47.4	*[%]
EO	0.00		[10 ⁹ /L]	0.0	[%]
BASO	0.00		[10 ⁹ /L]	0.0	[%]
IG	0.00		[10 ⁹ /L]	0.0	[%]
RBC	2.61	-	[10 ¹² /L]	↓	
HGB	74	-	[g/L]		
HCT	0.214	-	[Ratio]		Microcytosis
MCV	82.0	-	[fL]	↓	
MCH	28.4	-	[pg]		
MCHC	346	-	[g/L]	✓	
RDW-CV	14.8	-	[%]		
RET			[10 ⁹ /L]		[%]
IRF			[Ratio]		
RET-He			[pg]		
IPF			[%]		
NRBC	0.00		[10 ⁹ /L]	0.0	[/100WBC]
PLT	4	*	[10 ⁹ /L]	↓	Thrombocytopenia
MPV	8.9	-	[fL]		
PDW	7.5	-	[%]		
PCT	0.00	-	[%]		

WBC IP Message(s)
 Lymphocytosis
 Blasts?
 Atypical Lympho?



zkontrolovat mikroskopem

Manual Diff

SEG _____ META _____ NORMAL _____ MICRO _____

BAND _____ MYELO _____ POLYCH _____ MAKRO _____

LYMPH _____ PRO _____ HYPOCH _____ ANISO _____

MONO _____ BLAST _____ POIK _____ BASOtip _____

EOSIN _____ VARLY _____ TARGET _____

BASO _____ TOXgran _____ SPHERO _____ NRBC _____

PLT EST _____ PLT morf _____

Comment: _____

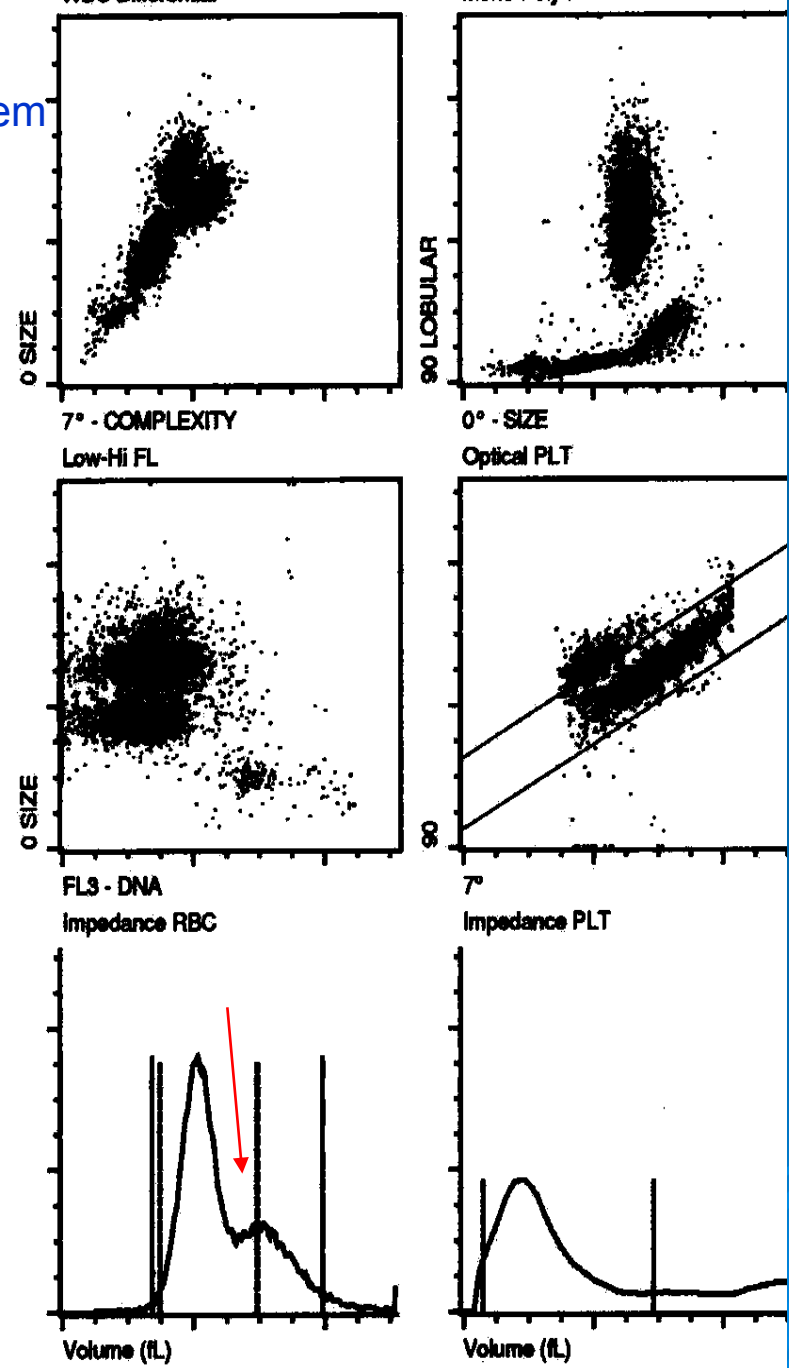
DIFF by: _____ Date: _____

RBC morf.

Doctor:
 User Defined A:
 User Defined B: zkontrolovat mikroskopem
 User Defined C:
 User Defined D:

33F

X-B	WBC	RBC	PLT	RETC	
-	-	-	-	-	*InvalidData
WBC	4.55	10e9/L ✓	WVF	.954	↓
SEG	1.79		%S	39.3	
BAND	0.00		%BD	0.00	
IG	0.00		%IG	0.00	
BLST	0.00		%BL	0.00	
MONE	.431		%Me	9.46	✓
EOS	.028		%E	.623	
BASO	.019		%B	.412	
LYMe	2.29		%Le	50.2	↑ FP?
VARI	0.00		%VL	0.00	
RBC	2.67s	10e12/L ↓	RBCo	2.67	
HGB	92.3	g/L ↓	%MIC	1.55	
HCT	.263s	L/L ↓	%MAC	23.3	ASYM
MCV	98.4s	fL ↑	%HPO	---	
MCH	34.5s	pg ✓	%HPR	---	
MCHC	351.s	g/L ✓			
RDW	24.1s	%CV ↑			
HDW	---	%			
RETC	---	10e9/L	%R	---	
IRF	---				
NRBC	0.00s	10e9/L	NRW	0.00s	
MCVr	---	fL			
MCHr	---	pg			
CHCr	---	g/L			
PLTo	22.4	10e9/L	PLTi	31.8	↓
MPV	11.1*	fL ↔	CD61	---	
PDW	13.4*	10(GSD)	PLTs	---	✓
PCT	.247*	mL/L	PLTI	---	
%rP	---	%			



patologický KO

Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	

Lower, Upper, or Lower and Upper Region Interference in PLTI Histogram

Sex:
 Doctor:
 User Defined A:
 User Defined B: **zkontrolovat mikroskopem**
 User Defined C:
 User Defined D:

X-B WBC RBC PLT RETC

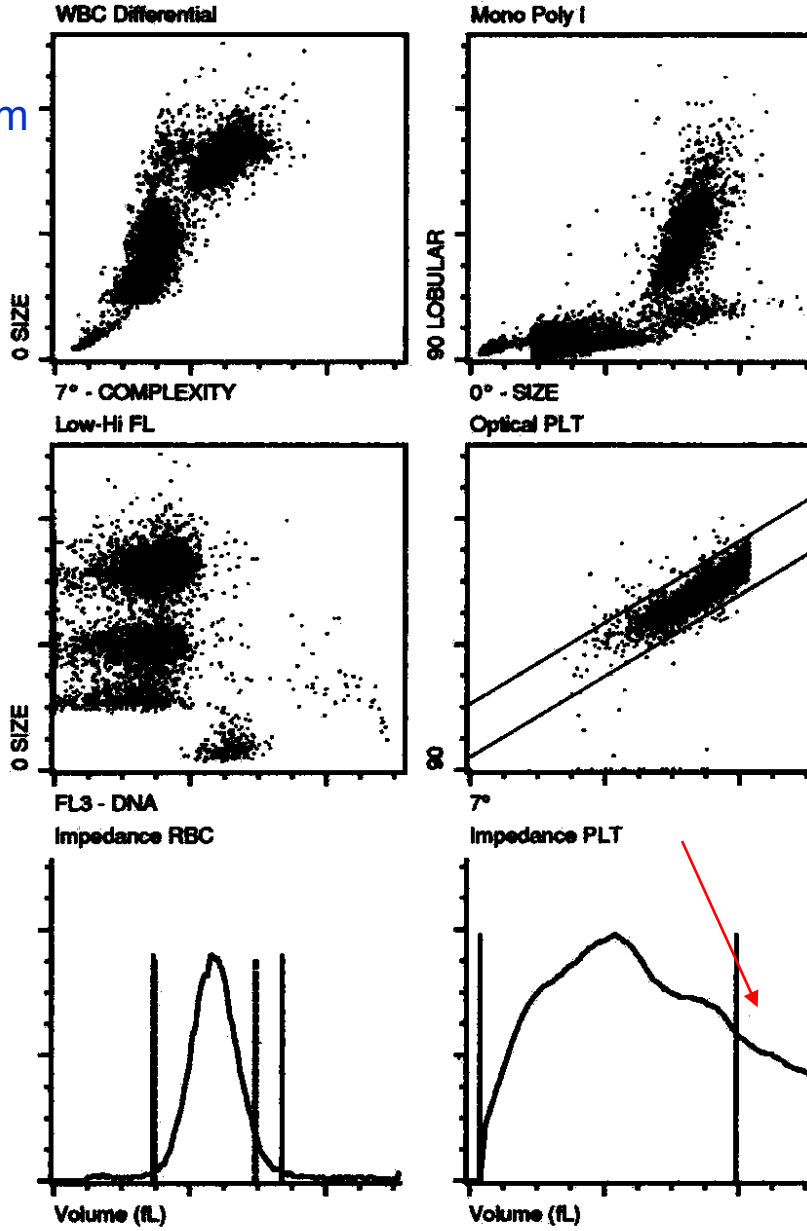
*InvalidData

WBC	1.78	10e9/L	↓	WVF	.981
SEG	.911			%S	51.3
BAND	0.00			%BD	0.00
IG	0.00			%IG	0.00
BLST	0.00			%BL	0.00
MONE	.116			%Me	6.51
EOS	.015			%E	.827
BASO	.010			%B	.587
LYMe	.724			%Le	40.8
VARI	0.00			%VL	0.00
RBC	3.15	10e12/L	↓	RBCo	3.19
HGB	103.	g/L	↓	%MIC	2.27
HCT	.302	L/L	↓	%MAC	5.31
MCV	95.9	fL		%HPO	----
MCH	32.6	pg	✓	%HPR	----
MCHC	340.	g/L			
RDW	14.2	%CV			
HDW	----	%			
RETC	----	10e9/L		%R	----
IRF	----				
NRBC	0.00	10e9/L		NRW	0.00
MCVr	----	fL			
MCHr	----	pg			
CHCr	----	g/l			
PLTo	26.9*	10e9/L	↓	PLTi	63.1*
MPV	15.8*	fL	↑	CD61	83.7
PDW	13.9*	10(GSD)		PLTs	.008
PCT	425*	mL/L		PLTI	24.5
%rP	----	%			

PltClmp

Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	
BASO	TOXGRAN	SPHERO	NRBC
PLT EST		PLT MORPH	

Comment:
 DIFF by: _____ Date: _____



Interference with PLT Results Due to PLT Clumping
 PIC/POC Delta

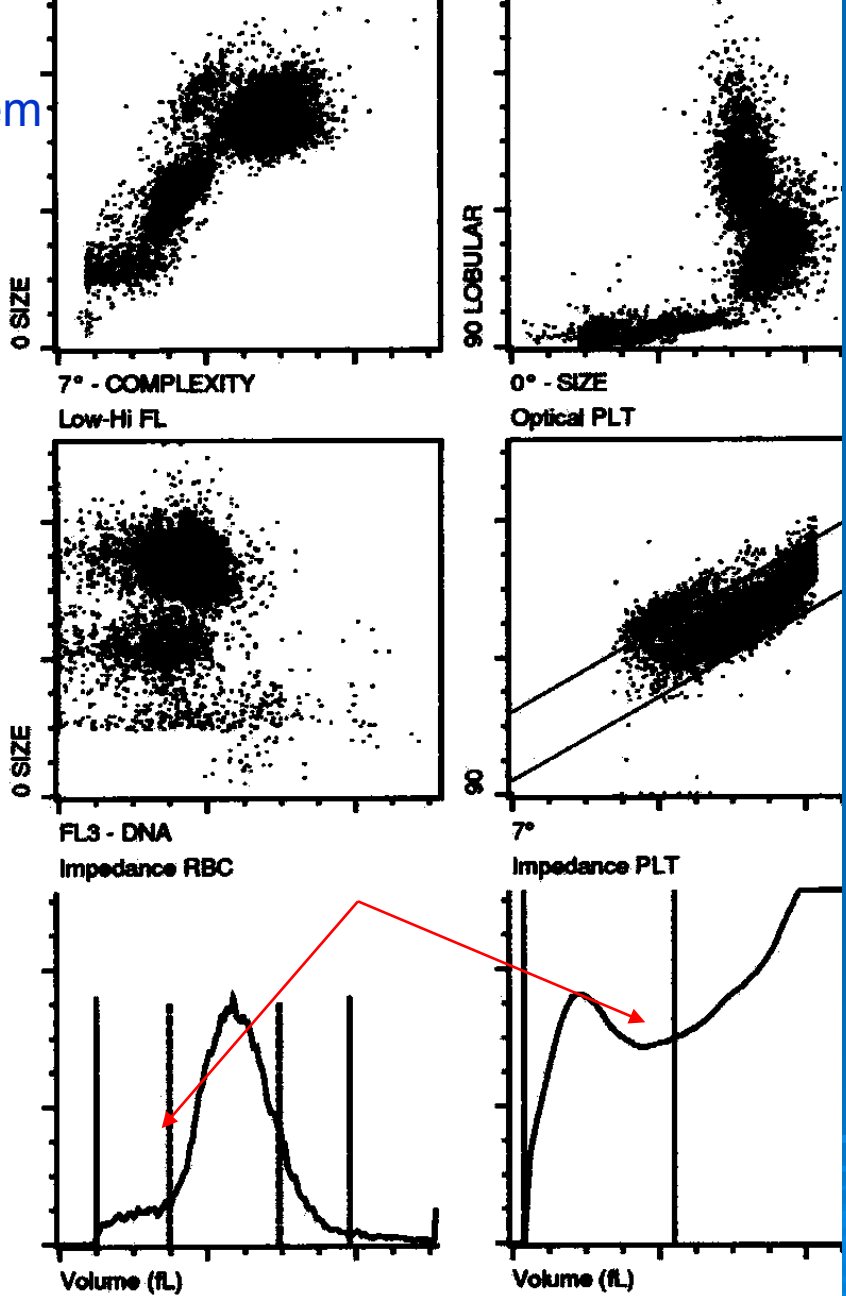
patologický KO

Doctor: 0600/11/05/2011
 User Defined A:
 User Defined B:
 User Defined C: **zkontrolovat mikroskopem**
 User Defined D:

39M

X-B In	WBC In	RBC In	PLT In	RETC In	
WBC	9.61	10e9/L ✓	WVF	.963	*InvalidData ↓
SEG	2.81		%S	29.2	
BAND	0.00		%BD	0.00	
IG	.533		%IG	5.54	IG 0.68
BLST	0.00		%BL	0.00	
MONE	.234		%Me	2.44	
EOS	2.72		%E	28.3	↑
BASO	.148		%B	1.54	
LYMe	3.17		%Le	33.0	✓FP?
VARL	0.00		%VL	0.00	
RBC	3.24	10e12/L ↓	RBCo	3.24	
HGB	97.6	g/L	%MIC	9.42	
HCT	.303	L/L	%MAC	11.9	
MCV	93.3	fL	%HPO	---	
MCH	30.1	pg ✓	%HPR	---	
MCHC	322.	g/L			
RDW	26.4	%CV ↑			
HDW	---	%			
RETC	---	10e9/L	%R	---	
IRF	---				
NRBC	0.00s	10e9/L	NR/W	0.00s	
MCVr	---	fL			
MCHr	---	pg			
CHCr	---	g/L			
PLTo	45.1	10e9/L ↓	PLTi	61.9	
MPV	11.6*	fL	CD61	---	
PDW	20.0*	10(GSD) ↑	PLTs	---	
PCT	.522*	mL/L	PLTI	---	
%rP	---	%			

Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	
BASO	TOXGRAN	SPHERO	NRBC
PLT EST		PLT MORPH	



patologický KO

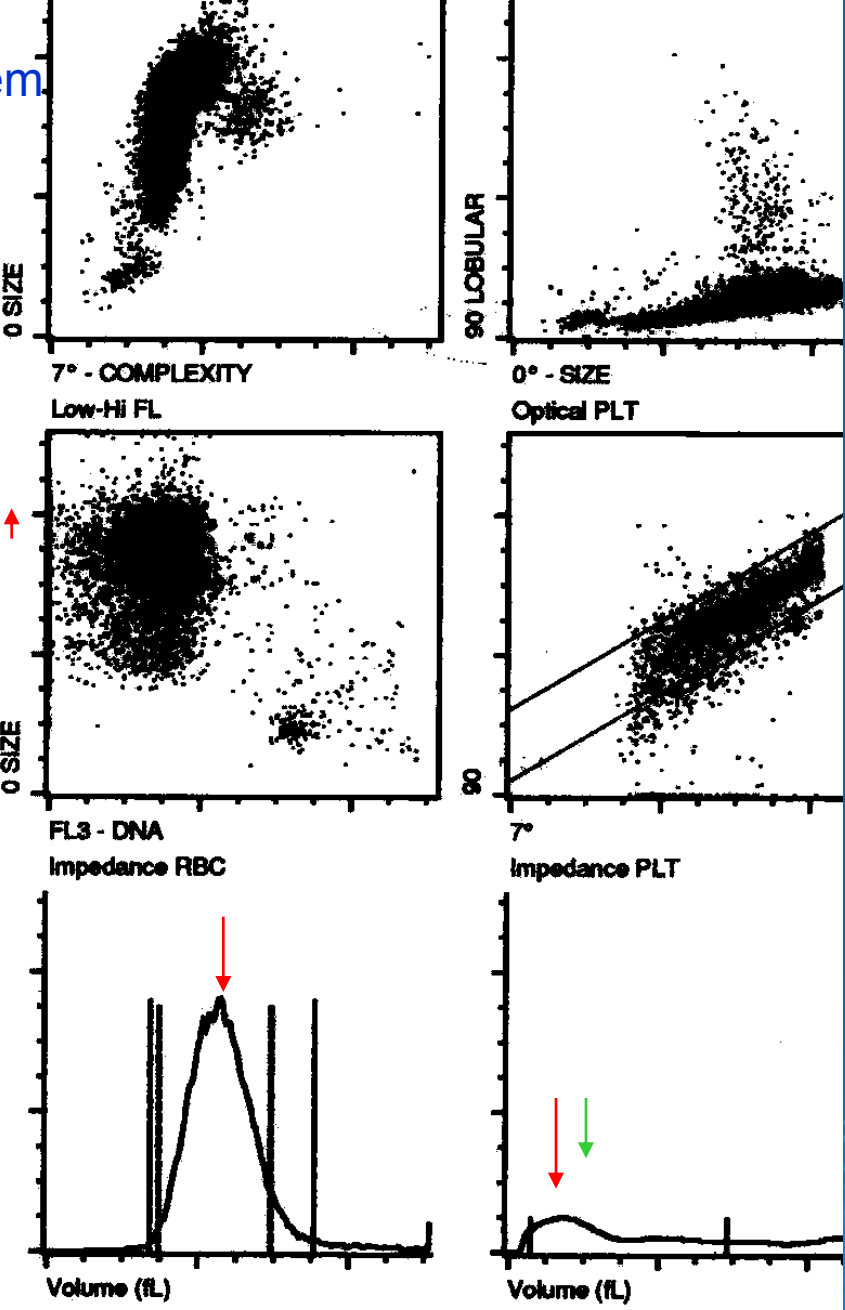
Lower, Upper, or Lower and Upper Region Interference in PLTi Histogram

patologický KO

User Defined A:
 User Defined B:
 User Defined C: zkontrolovat mikroskopem
 User Defined D:

X-B In	WBC In	RBC In	PLT In	RETC In	
WBC	18.0	10e9/L ↑	WFV	.980	
SEG	.097		%S	.540 ↓	
BAND	0.00		%BD	0.00	
IG	.011		%IG	.062 ↑	IG 0.54
BLST	10.4*		%BL	57.5*	BLAST 0.90
MONe	4.59*		%Me	25.5*	
EOS	.140		%E	.778	
BASO	0.00		%B	0.00	
LYMe	2.64*		%Le	14.7* ↓	
VARL	.170*		%VL	.944*	VARLYM 0.50 ↑
RBC	3.34	10e12/L	RBCo	3.45	
HGB	110.	g/L	%MIC	1.34	
HCT	.313	L/L	%MAC	7.49	
MCV	93.8	fL	%HPO	---	
MCH	33.0	pg	%HPR	---	
MCHC	352.	g/L			
RDW	17.3	%CV ↑			
HDW	---	%			
RETC	---	10e9/L	%R	---	
IRF	---				
NRBC	.611	10e9/L ↑	NRW	3.39	
MCVr	---	fL			
MCHr	---	pg			
CHCr	---	g/L			
PLTo	5.54	10e9/L ↓	PLTI	---	
MPV	13.6	fL ↑	CD61	---	
PDW	12.2	10(GSD) ✓	PLTs	---	
PCT	.075	mL/L	PLTI	---	
%rP	---	%			

Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VARLYM	TARGET	
BASO	TOXGRAN	SPHERO	NRBC
PLT EST		PLT MORPH	



Unable to Find Clear Separation Between WBC Subpopulations

Doctor: 0617/13/05/2011

User Defined A:

User Defined B: zkontrolovat mikroskopem

User Defined C:

User Defined D:

X-B In	WBC In	RBC In	PLT In	RETC In		
WBC	25.6	10e9/L	↑	WVF	.969	
SEG	10.0*			%S	39.1*	↓
BAND	3.24*			%BD	12.6*	↑
IG	2.72*			%IG	10.6*	↑
BLST	.006*			%BL	.023*	
MONE	4.08*			%Me	15.9*	
EOS	.046*			%E	.180*	
BASO	.054*			%B	.211*	
LYMe	5.45*			%Le	21.3*	✓
VARL	0.00*			%VL	0.00*	
RBC	3.52	10e12/L		RBCo	3.55	
HGB	91.9	g/L		%MIC	18.8	■
HCT	.273	L/L		%MAC	1.71	
MCV	77.6	fL		%HPO	---	
MCH	26.1	pg		%HPR	---	
MCHC	336.	g/L	✓			
RDW	26.0	%CV	↑			
HDW	---	%				
RETC	---	10e9/L		%R	---	
IRF	---					
NRBC	.162	10e9/L		NR/W	.633	
MCVr	---	fL				
MCHr	---	pg				
CHCr	---	g/L				
PLTo	53.7*	10e9/L	↓	PLTi	88.6*	
MPV	18.3*	fL	↑	CD61	---	
PDW	10.1*	10(GSD)	✓	PLTs	---	
PCT	.982*	mL/L		PLTI	---	
%rP	---	%				

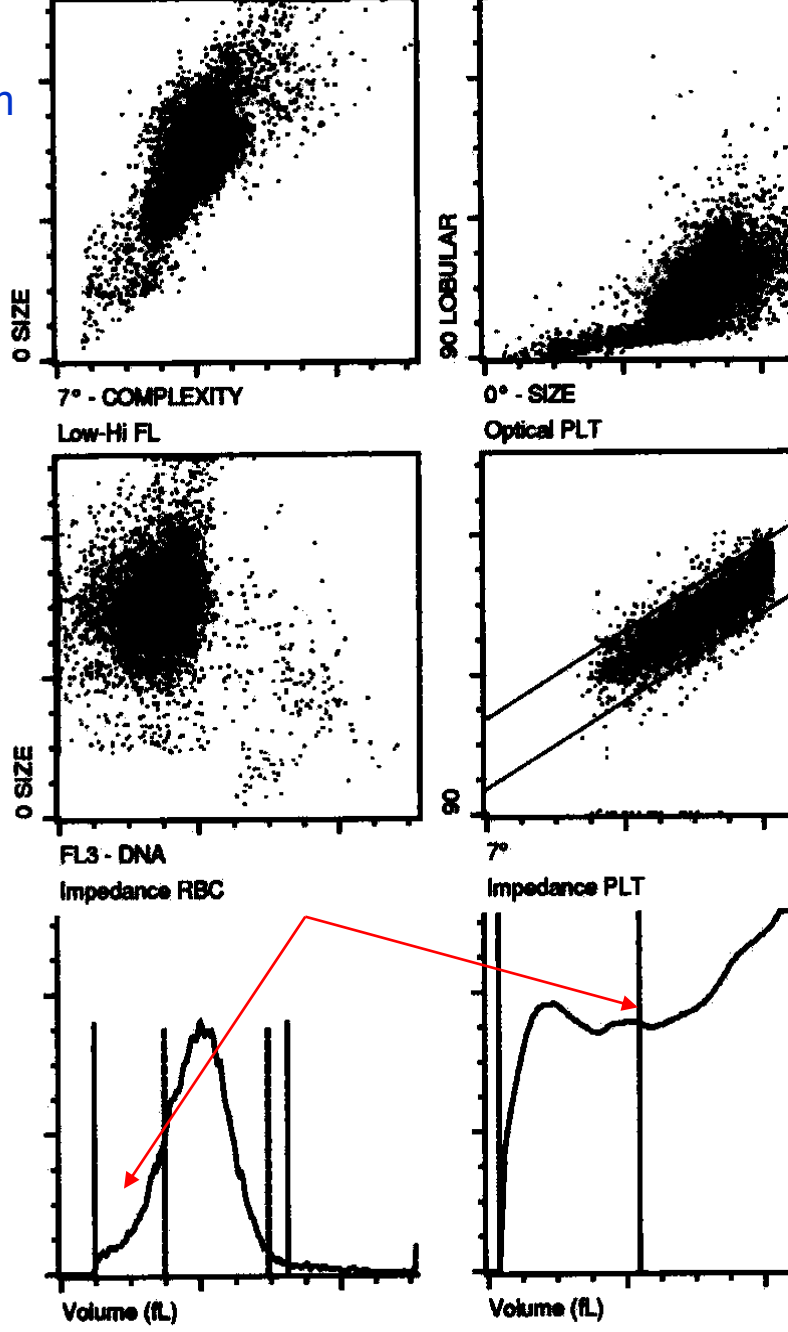
Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	
BASO	TOXGRAN	SPHERO	NRBC

*InvalidData

BAND 0.87

IG 0.90

BLAST 0.90



Unable to Find Clear Separation Between WBC Subpopulations
PIC/POC Delta

48M

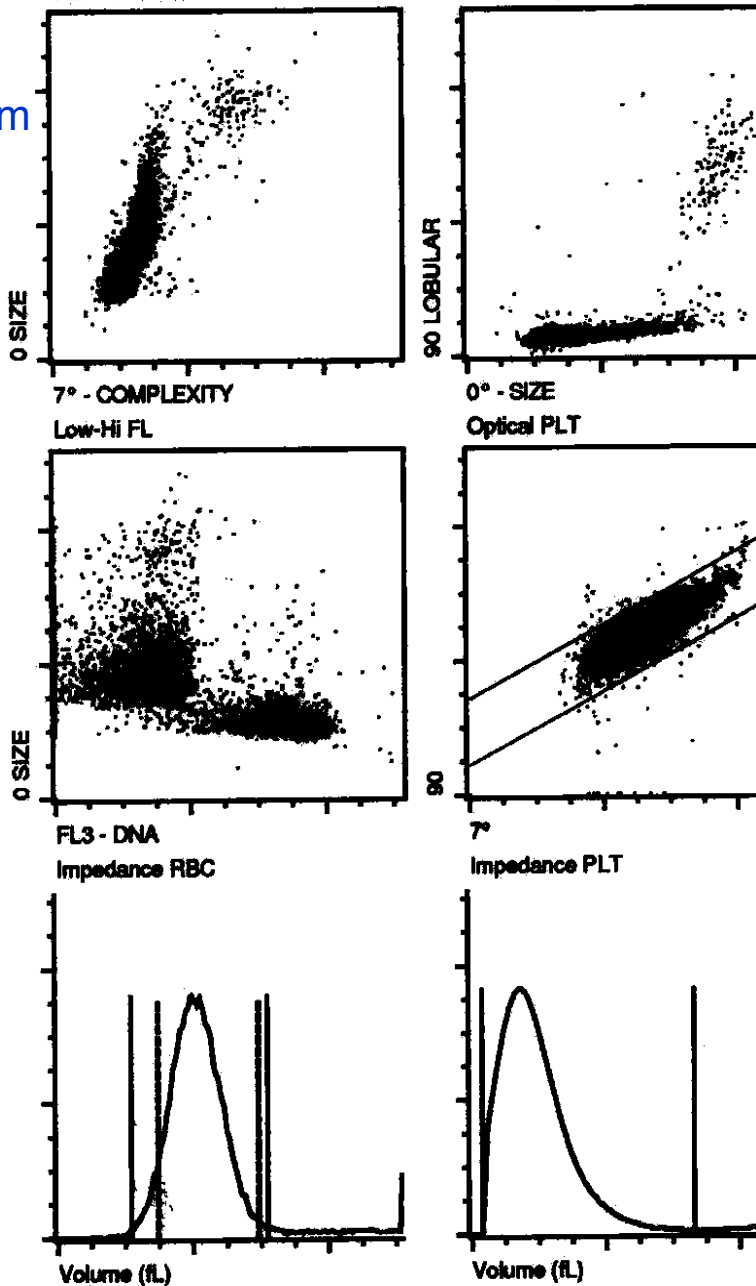
patologický KO

zkontrolovat mikroskopem

patologický KO

Sex:
 Doctor:
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

X-B	WBC	RBC	PLT	RETC	
WBC	120	10e9/L	↑	WVF	.613
SEG	3.59			%S	2.98 ↓
BAND	0.00			%BD	0.00
IG	0.00			%IG	0.00
BLST	.018			%BL	.015
MONe	4.12			%Me	3.42
EOS	.036			%E	.030
BASO	.405			%B	.336
LYMe	66.5			%Le	55.2
VARL	45.9			%VL	38.1
				VARLYM	0.90
RBC	3.53	10e12/L	↓	RBCo	3.48
HGB	96.2	g/L		%MIC	6.70
HCT	292	L/L		%MAC	1.56
MCV	82.7	fL		%HPO	14.7
MCH	27.2	pg		%HPR	.181
MCHC	329	g/L			
RDW	17.9	%CV	↑		
HDW	10.0	%			
RETC	69.0	10e9/L	✓	%R	1.95
IRF	.363	↑			
NRBC	0.00	10e9/L		NRW	0.00
MCVr	92.7	fL			
MCHr	26.6	pg			
CHCr	284	g/l			
PLTo	180	10e9/L		PLTi	185
MPV	6.67	fL		CD61	---
PDW	16.4	10(GSD)		PLTs	---
PCT	1.20	mL/L		PLTI	---
%rP	12.2	%			



Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	
BASO	TOXGRAN	SPHERO	NBCC
PLT EST		PIT MORPH	

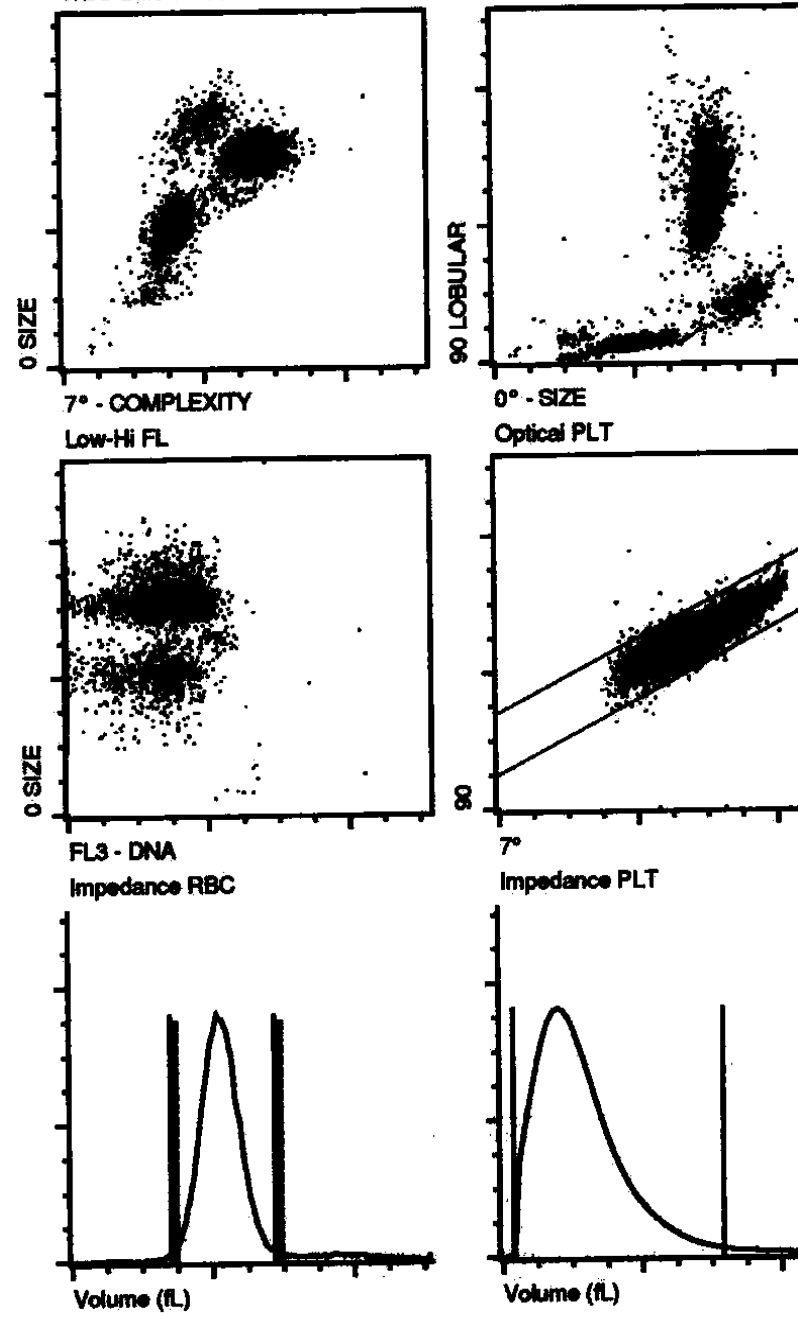
Sex: F
 Doctor: 0630/12/05/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

50F

X-B In	WBC In	RBC In	PLT In	RETC In
WBC	6.32	10e9/L	WVF	.995
SEG	3.69		%S	58.5
BAND	0.00		%BD	0.00
IG	0.00		%IG	0.00
BLST	0.00		%BL	0.00
MONe	.557		%Me	8.81
EOS	.118		%E	1.87
BASO	.040		%B	.631
LYMe	1.91		%Le	30.2
VARL	0.00		%VL	0.00
RBC	4.58	10e12/L	RBCo	4.45
HGB	131.	g/L	%MIC	1.54
HCT	.391	L/L	%MAC	.982
MCV	85.4	fL	%HPO	3.84
MCH	28.7	pg	%HPR	0.00
MCHC	336.	g/L		
RDW	12.5	%CV		
HDW	6.52	%		
RETC	60.7	10e9/L ✓	%R	1.33
IRF	.221			
NRBC	0.00	10e9/L	NR/W	0.00
MCVr	93.2	fL		
MCHr	27.5	pg		
CHCr	292.	g/L		
PLTo	267.	10e9/L	PLTi	265.
MPV	7.20	fL	CD61	----
PDW	17.3	10(GSD)	PLTs	----
PCT	1.93	mL/L	PLTI	----
%rP	.619	%		



Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	
BASO	TOXGRAN	SPHERO	NRBC



KO v normě



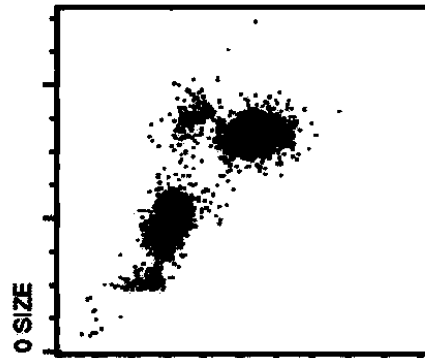
Sex: F
 Doctor: 0610/12/05/2011
 User Defined A:
 User Defined B:
 User Defined C:
 User Defined D:

53F

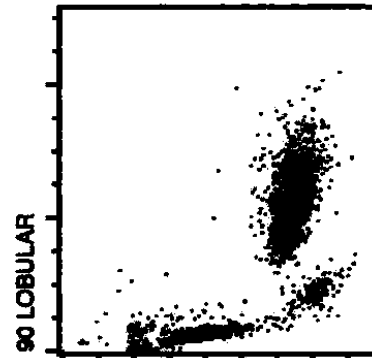
X-B In	WBC In	RBC In	PLT In	RETC In
WBC	4.42	10e9/L	WVF	.996
SEG	2.47		%S	56.0
BAND	0.00		%BD	0.00
IG	0.00		%IG	0.00
BLST	0.00		%BL	0.00
MONe	.238		%Me	5.38
EOS	.024		%E	.542
BASO	.031		%B	.697
LYMe	1.65		%Le	37.4
VARL	0.00		%VL	0.00
RBC	4.53	10e12/L	RBCo	4.44
HGB	138.	g/L	%MIC	1.10
HCT	.401	L/L	%MAC	1.05
MCV	88.5	fL	%HPO	.424
MCH	30.4	pg	%HPR	.013
MCHC	344.	g/L		
RDW	12.3	%CV		
HDW	7.01	%		
RETC	45.8	10e9/L	%R	1.01
IRF	.105			
NRBC	0.00	10e9/L	NR/W	0.00
MCVr	97.3	fL		
MCHr	30.4	pg		
CHCr	310.	g/L		
PLTo	197.	10e9/L	PLTi	196.
MPV	9.81	fL	CD61	----
PDW	17.6	10(GSD)	PLTs	----
PCT	1.94	mL/L	PLTI	----
%rP	.143	%		



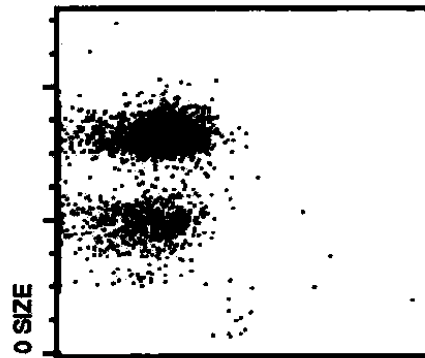
Manual Differential	RBC Morphology		
SEG	META	NORMAL	MICRO
BAND	MYELO	POLYCH	MACRO
LYMPH	PRO	HYPOCH	ANISO
MONO	BLAST	POIK	BASOSTIP
EOSIN	VAR LYM	TARGET	
BASO	TOXGRAN	SPHERO	NRBC
PLT EST		PLT MORPH	



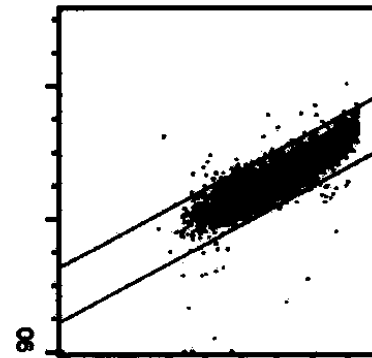
7° - COMPLEXITY
Low-Hi FL



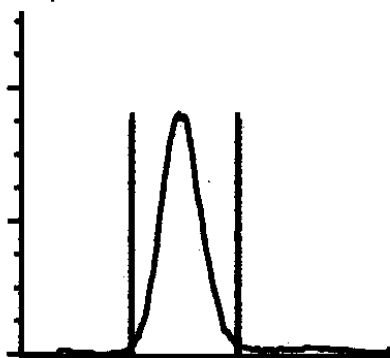
0° - SIZE
Optical PLT



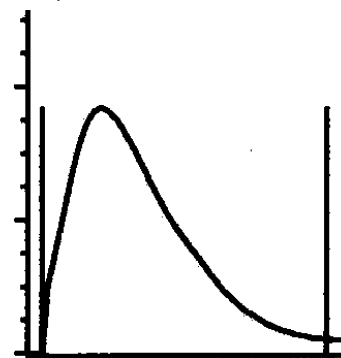
FL3 - DNA
impedance RBC



7°
Impedance PLT



Volume (fL)



Volume (fL)

KO v normě