



SCHISTOCITI: VALIDAZIONE E SIGNIFICATO CLINICO



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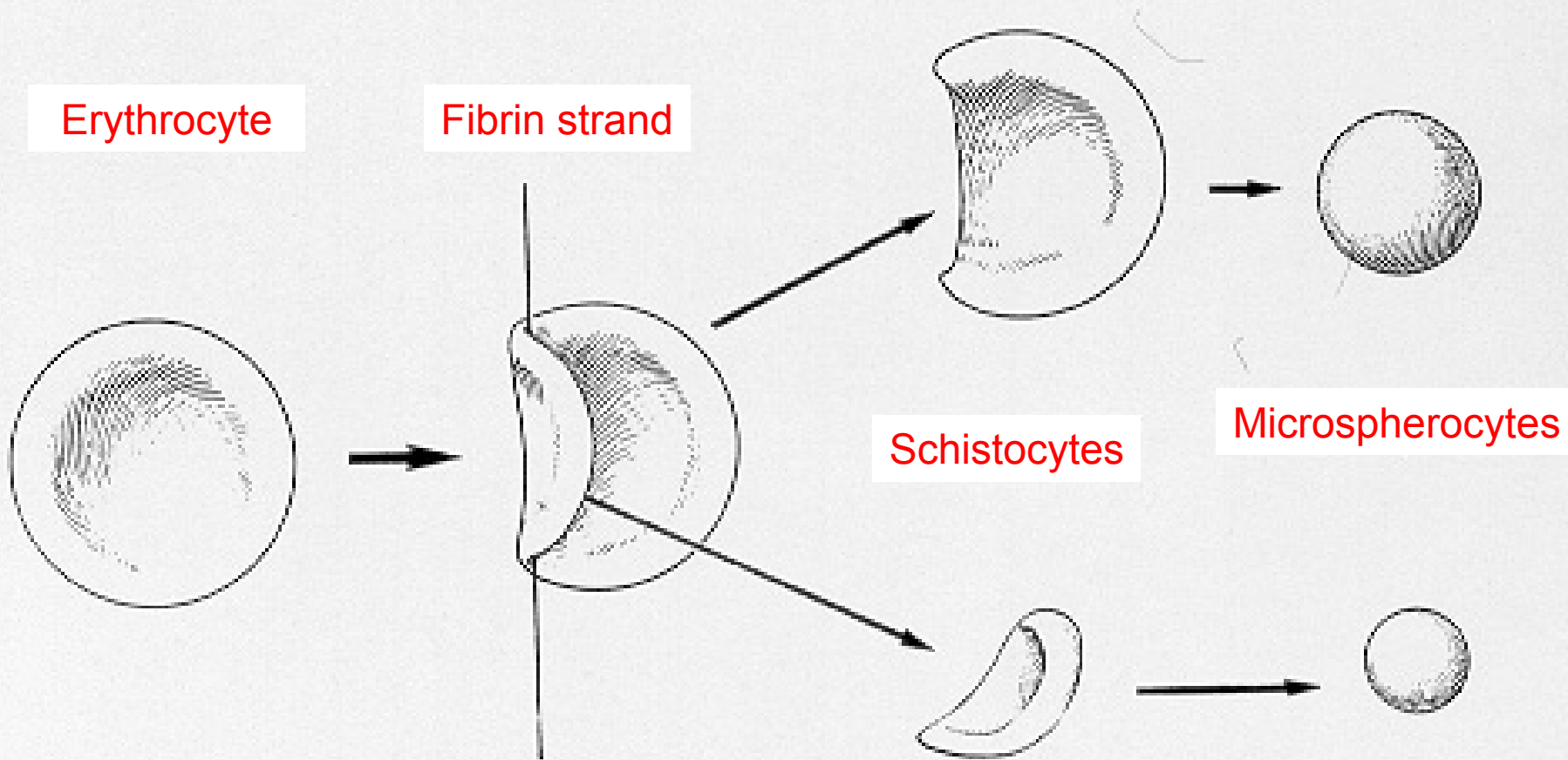
*EMATOLOGIA DI LABORATORIO:
percorsi diagnostici e obiettivi clinici.
Milano 11-12 Novembre 2010*

Schistocytes

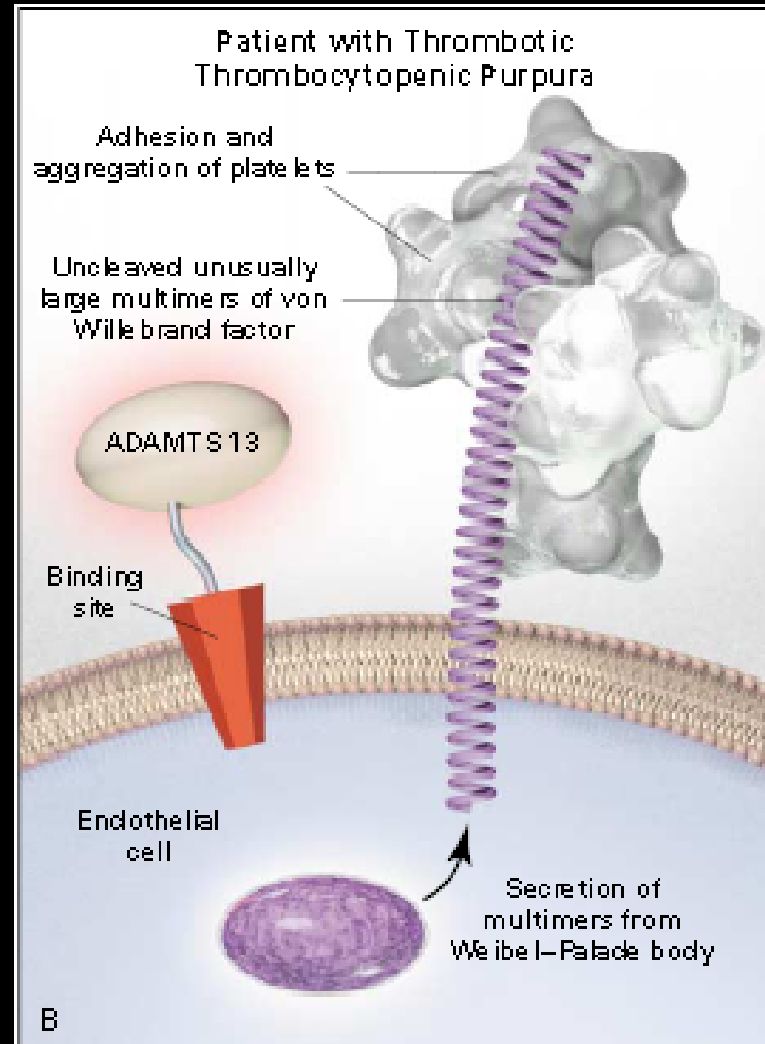
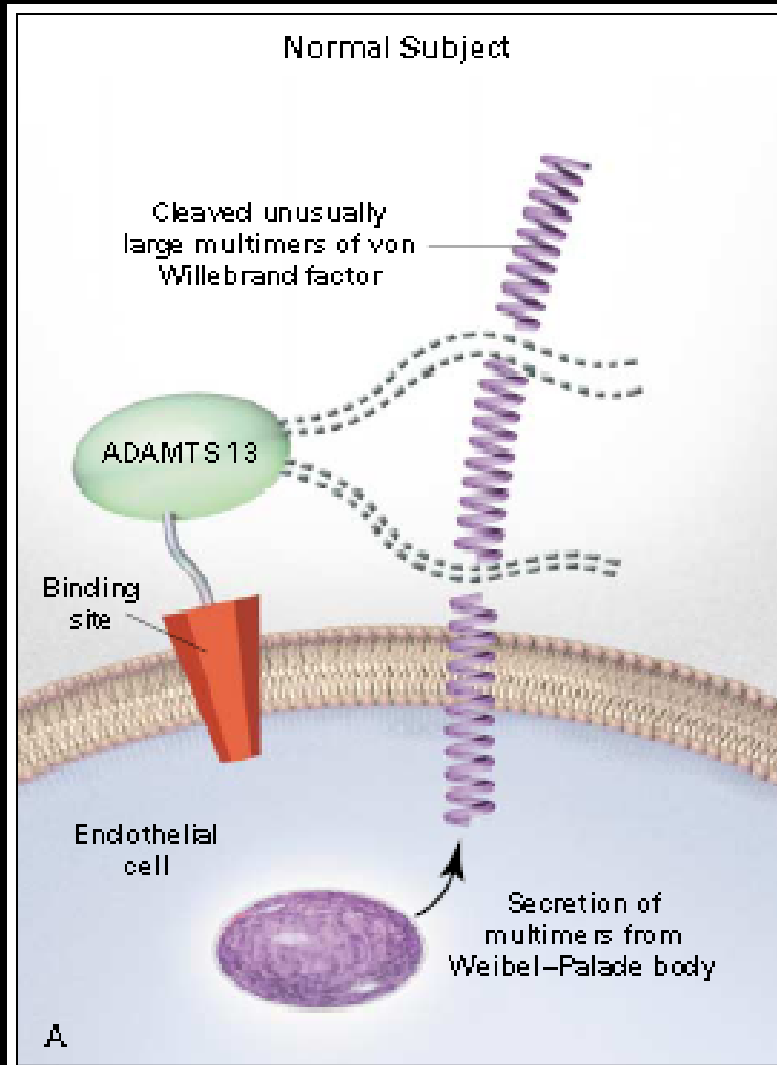


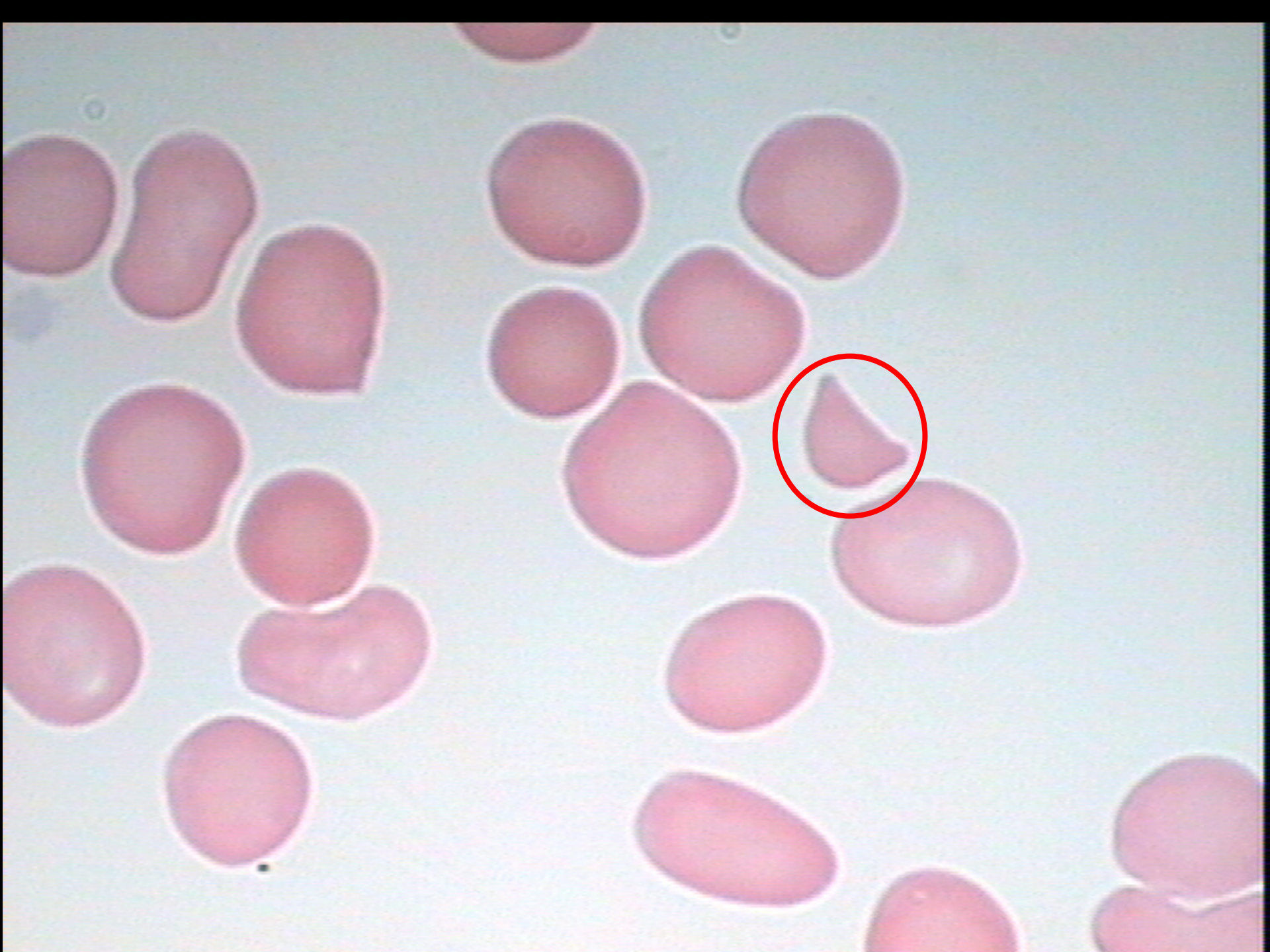
- Red blood cells fragments of triangular/crescent/ helmet form with rectilinear profile segment testifying the zone of break
- Observed on blood smears
- They result from mechanical, toxic or heat-induced damage of normal RBC
- They appear under several conditions (after surgery, solid organ and/or bone marrow transplantation, HIV infection, in diseases with cardiac and vessel abnormalities, pre-eclampsia, severe renal diseases, gastric carcinoma)
- Often the earliest sign of
thrombotic microangiopathy (TMA)
cancer
- detection and quantification are thus of primary importance
- Morphological identification requires well-trained hematologists/biologists

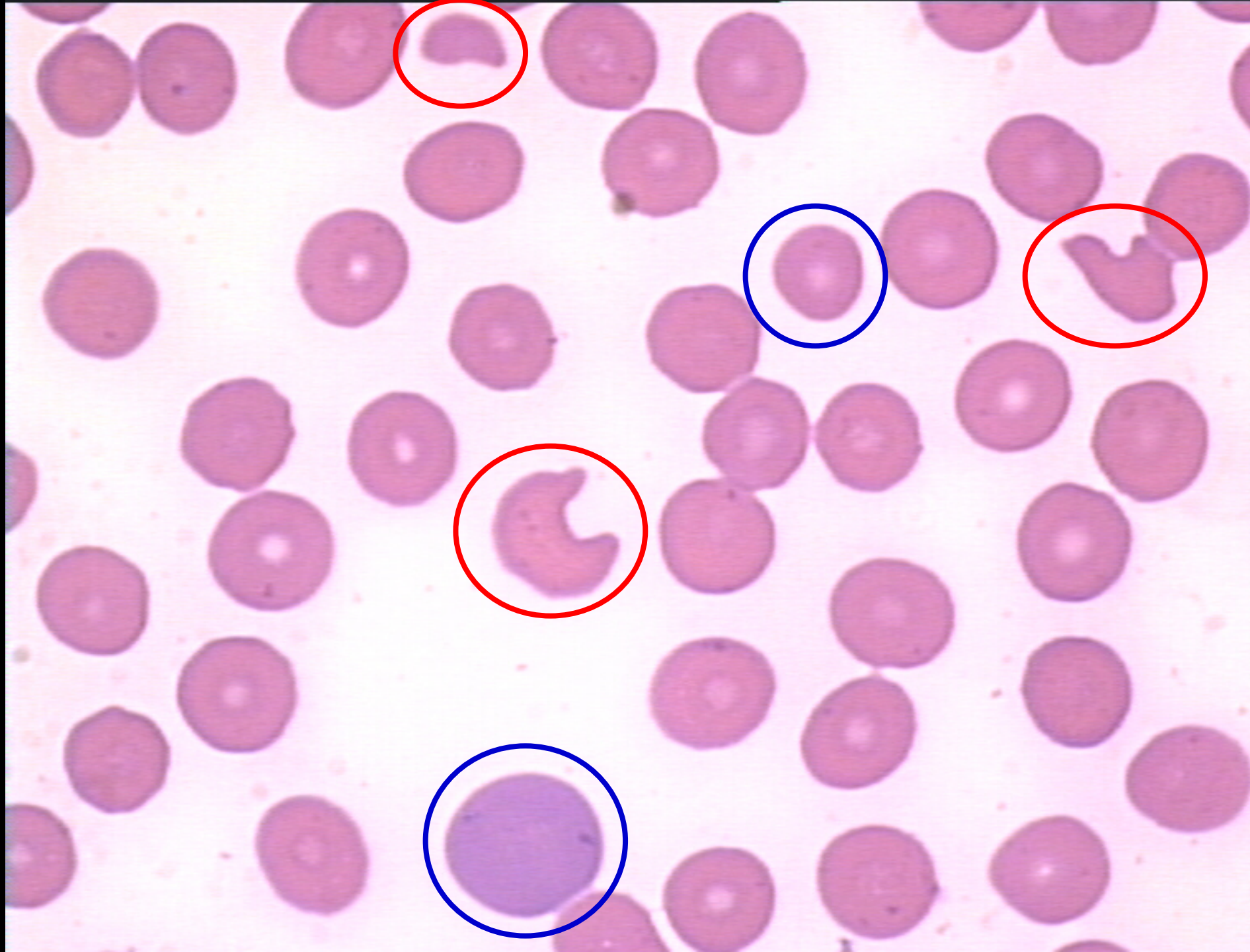
Schistocyte genesis

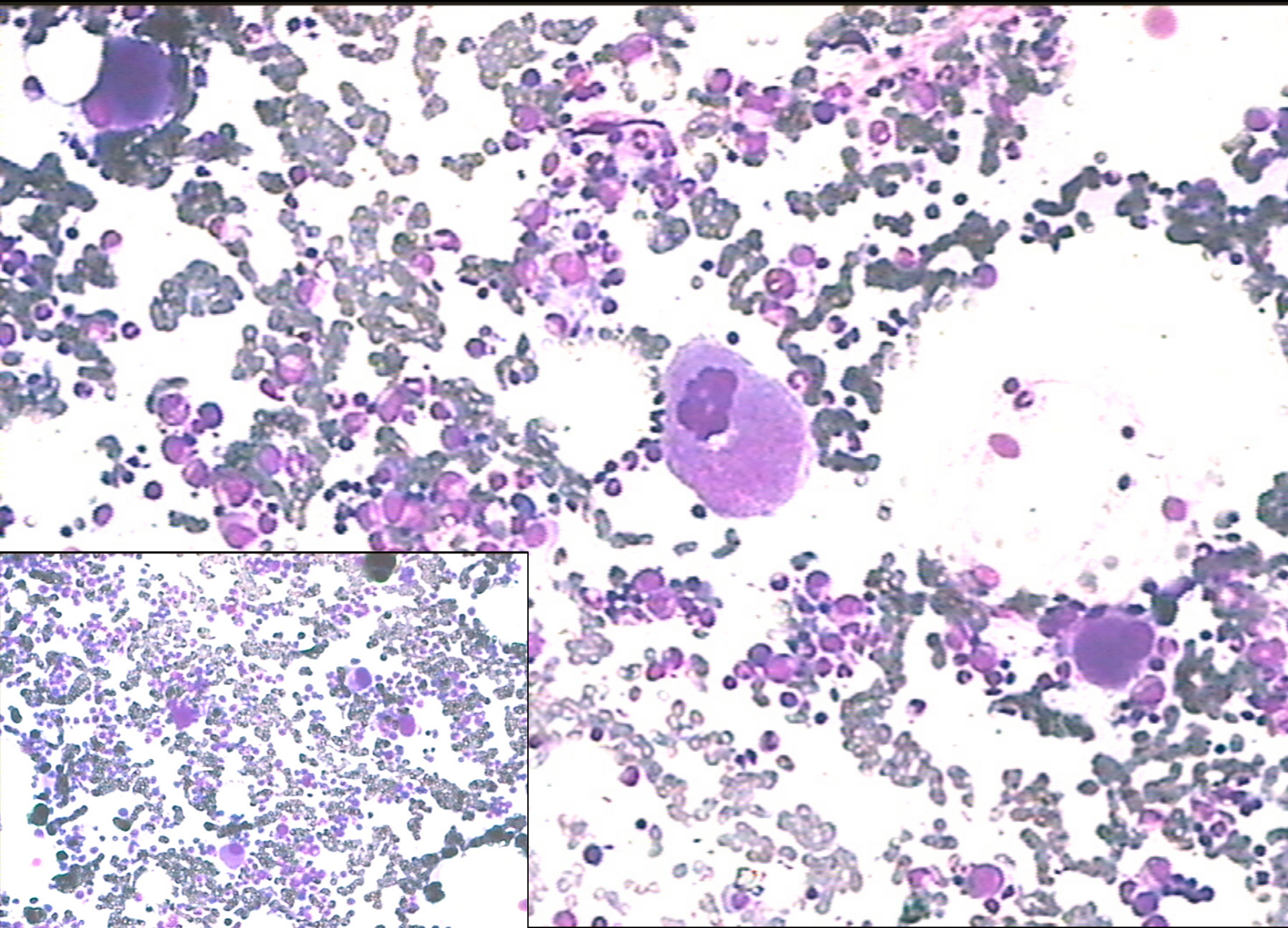


TTP pathogenesis









Patologie associate alla presenza di schistociti

- Anemie emolitiche da danno meccanico
- Anemie emolitiche microangiopatiche
 - Coagulazione Intravasale Disseminata (DIC)
 - Sindrome emolitico uremica (HUS)
 - Porpora trombotica trombocitopenica
- Dopo interventi chirurgici
- Dopo trapianto di midollo osseo
- Vasculiti
- Anomalie vascolari
- Infezioni
- Patologie del midollo osseo primitive e secondarie

Morphologic Diagnosis of Thrombotic Thrombocytopenic Purpura

Edward R. Burns,^{1,2*} Yenmay Lou,² and Anjali Pathak²

TABLE I. Incidence of Schistocytes on Peripheral Blood Smears

Patient groups	<i>N</i>	Prevalence (%)	Mean ± SD (%)	Range (%)
Normals	40	58	0.05 ± 0.03	0–0.27
Chronic renal disease	28	93	0.21 ± 0.18	0–0.6
Preeclampsia	5	80	0.25 ± 0.08	0–0.45
Mechanical valves	5	100	0.18 ± 0.15	0–0.48
TTP	6	100	8.35 ± 2.74	1.0–18.4

In the absence of known valvular conditions, preeclampsia, lupus, DIC, or pre-existing renal disease, the finding of **more than 1% schistocytes** on a peripheral blood smear along with thrombocytopenia and hemolysis should be taken as putative evidence of TTP and treatment begun.

Red blood cell fragmentation before hematopoietic progenitor cell transplantation

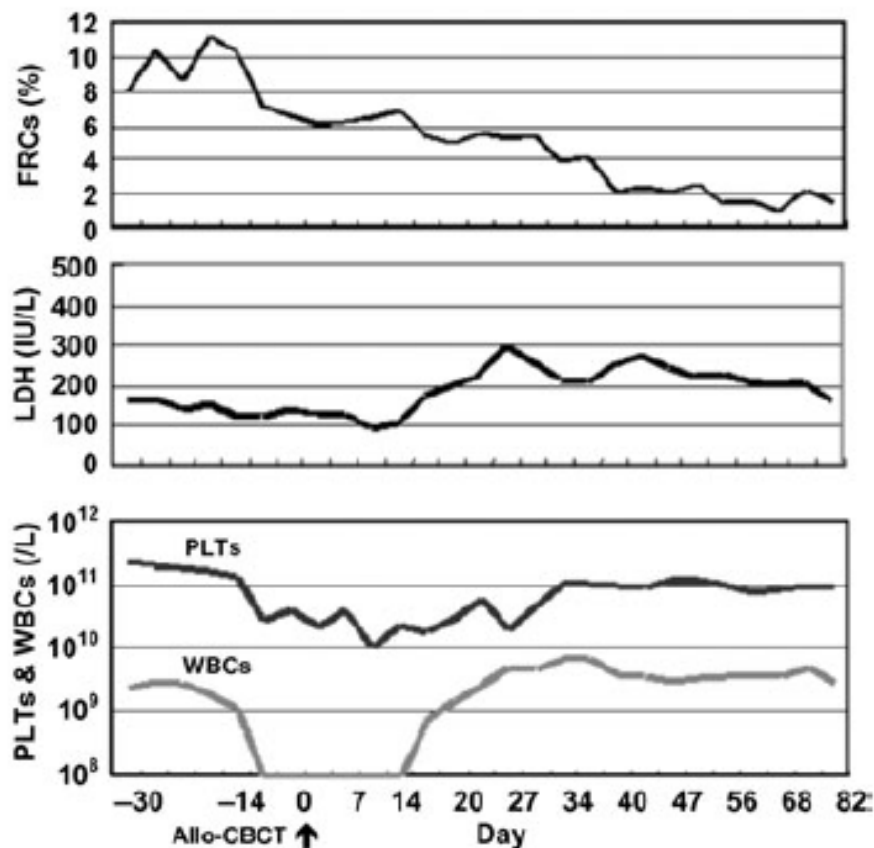


Fig. 2. Clinical course of Case 1. FRC (%) was measured with an XE-2100 hematology analyzer twice weekly and periodically by manual counting, from 1 month before (Day -30) until 82 days after transplantation. CBCT = cord blood stem cell transplantation.

TRANSFUSION

Volume 44,

December 2004

Diagnostic criteria for hematopoietic stem cell transplant-associated microangiopathy: results of a consensus process by an International Working Group.

[Ruutu T](#), [Barosi G](#), [Benjamin RJ](#), [Clark RE](#), [George JN](#), [Gratwohl A](#), [Holler E](#), [Iacobelli M](#), [Kentouche K](#), [Lammle B](#), [Moake JL](#), [Richardson P](#), [Socie G](#), [Zeigler Z](#), [Niederwieser D](#), [Barbui T](#); [European Group for Blood and Marrow Transplantation](#); [European LeukemiaNet](#).

Department of Medicine, Helsinki University Central Hospital, Helsinki, Finland. tapani.ruutu@hus.fi

BACKGROUND AND OBJECTIVES: There are no widely accepted criteria for the definition of hematopoietic stem cell transplant -associated microangiopathy (TAM). An International Working Group was formed to develop a consensus formulation of criteria for diagnosing clinically significant TAM. **DESIGN AND METHODS:** The participants proposed a list of candidate criteria, selected those considered necessary, and ranked those considered optional to identify a core set of criteria. Three obligatory criteria and four optional criteria that ranked highest formed a core set. In an appropriateness panel process, the participants scored the diagnosis of 16 patient profiles as appropriate or not appropriate for TAM. Using the experts' ratings on the patient profiles as a gold standard, the sensitivity and specificity of 24 candidate definitions of the disorder developed from the core set of criteria were evaluated. A nominal group technique was used to facilitate consensus formation. The definition of TAM with the highest score formed the final **PROPOSAL. RESULTS:** The Working Group proposes that the diagnosis of TAM requires fulfilment of all of the following criteria: (i) >4% schistocytes in blood; (ii) de novo, prolonged or progressive thrombocytopenia (platelet count <50 × 10⁹/L or 50% or greater reduction from previous counts); (iii) sudden and persistent increase in lactate dehydrogenase concentration; (iv) decrease in hemoglobin concentration or increased transfusion requirement; and (v) decrease in serum haptoglobin. The sensitivity and specificity of this definition exceed 80%. **INTERPRETATION AND CONCLUSIONS:** The Working Group recommends that the presented criteria of TAM be adopted in clinical use, especially in scientific trials.

Reference values

Adults: $\leq 0.1\%$

Newborn: 0.3-1.9%

Preterms: $\leq 5.5\%$

- ▶ Schistocytes are usually
 - specifically requested by clinicians
 - counted on PB smears by optical microscope
 - expressed as % of **1000** red blood cells

Table 7-3. Confidence Limits (95%) for Various Percentages of Blood Cells of a Given Type as Determined by Differential Counts

<i>a</i>	<i>n</i> = 100	<i>n</i> = 200	<i>n</i> = 500	<i>n</i> = 1,000	<i>n</i> = 10,000
0	0 - 3.6	0 - 1.8	0 - 0.7	0 - 0.4	0 - 0.1
1	0.0- 5.4	0.1- 3.6	0.3- 2.3	0.5- 1.8	0.8- 1.3
2	0.2- 7.0	0.6- 5.0	1.0- 3.6	1.2- 3.1	1.7- 2.3
3	0.6- 8.5	1.1- 6.4	1.7- 4.9	2.0- 4.3	2.6- 3.4
4	1.1- 9.9	1.7- 7.7	2.5- 6.1	2.9- 5.4	3.6- 4.5
5	1.6- 11.3	2.4- 9.0	3.3- 7.3	3.7- 6.5	4.5- 5.5
6	2.2- 12.6	3.1- 10.2	4.1- 8.5	4.6- 7.7	5.5- 6.5
7	2.9- 13.9	3.9- 11.5	4.9- 9.6	5.5- 8.8	6.5- 7.6
8	3.5- 15.2	4.6- 12.7	5.8- 10.7	6.4- 9.9	7.4- 8.6
9	4.2- 16.4	5.4- 13.9	6.6- 11.9	7.3- 10.9	8.4- 9.6
10	4.9- 17.6	6.2- 15.0	7.5- 13.0	8.2- 12.0	9.4- 10.7
15	8.6- 23.5	10.4- 20.7	12.0- 18.4	12.8- 17.4	14.3- 15.8
20	12.7- 29.2	14.7- 26.2	16.6- 23.8	17.6- 22.6	19.2- 20.8
25	16.9- 34.7	19.2- 31.6	21.3- 29.0	22.3- 27.8	24.1- 25.9
30	21.2- 40.0	23.7- 36.9	26.0- 34.2	27.2- 32.9	29.1- 31.0
35	25.7- 45.2	28.4- 42.0	30.8- 39.4	32.0- 38.0	34.0- 36.0
40	30.3- 50.3	33.2- 47.1	35.7- 44.4	36.9- 43.1	39.0- 41.0
45	35.0- 55.3	38.0- 52.2	40.6- 49.5	41.9- 48.1	44.0- 46.0
50	39.8- 60.2	42.9- 57.1	45.5- 54.5	46.9- 53.1	49.0- 51.0
55	44.7- 65.0	47.8- 62.0	50.5- 59.4	51.9- 58.1	54.0- 56.0
60	49.7- 69.7	52.9- 66.8	55.6- 64.3	56.9- 63.1	59.0- 61.0
65	54.8- 74.3	58.0- 71.6	60.6- 69.2	62.0- 68.0	64.0- 66.0
70	60.0- 78.8	63.1- 76.3	65.8- 74.0	67.1- 72.8	69.0- 70.9
75	65.3- 83.1	68.4- 80.8	71.0- 78.7	72.2- 77.7	74.1- 75.9
80	70.8- 87.3	73.8- 85.3	76.2- 83.4	77.4- 82.4	79.2- 80.8
85	76.5- 91.4	79.3- 89.6	81.6- 88.0	82.6- 87.2	84.2- 85.7
90	82.4- 95.1	85.0- 93.8	87.0- 92.5	88.0- 91.8	89.3- 90.6
91	83.6- 95.8	86.1- 94.6	88.1- 93.4	89.1- 92.7	90.4- 91.6
92	84.8- 96.5	87.3- 95.4	89.3- 94.2	90.1- 93.6	91.4- 92.6
93	86.1- 97.1	88.5- 96.1	90.4- 95.1	91.2- 94.5	92.4- 93.5
94	87.4- 97.8	89.8- 96.9	91.5- 95.9	92.3- 95.4	93.5- 94.5
95	88.7- 98.4	91.0- 97.6	92.7- 96.7	93.5- 96.3	94.5- 95.5
96	90.1- 98.9	92.3- 98.3	93.9- 97.5	94.6- 97.1	95.5- 96.4
97	91.5- 99.4	93.6- 98.9	95.1- 98.3	95.7- 98.0	96.6- 97.4
98	93.0- 99.8	95.0- 99.4	96.4- 99.0	96.9- 98.8	97.7- 98.3
99	94.6- 99.9	96.4- 99.9	97.7- 99.7	98.2- 99.5	98.7- 99.2
100	96.4-100	98.2-100	99.3-100	99.6-100	99.9-100

Adults: $\leq 0.1\%$

Newborns: 0.3-1.9%

Preterms: $\leq 5.5\%$

Conteggio in automazione degli schistociti

- Due tecnologie attualmente disponibili
- Accuratezza e precisione alla diagnosi e nel follow-up
- Screening nella routine
- Possibilità di diagnosi precoce

RBC fragments: conteggio in automazione con ADVIA 2120

Metodo basato sull' analisi integrata dei conteggi delle piastrine e dei globuli rossi.

Vengono contati gli eventi con:

- volume inferiore a 30fL
- indice rifrattivo >1.4
- frequenza $> 10000/ \mu\text{L}$

Header - WB Playback

SID	20060679
Aspiration Date/Time	22/04/2005 19.21.41
Sample Type	PATIENT
Rack & Position	1 3
Cal Factors	Stored

FOR LABORATORY USE ONLY

Additional Platelet Parameters

PDW	H 72,6	* %
PCT	0,14	* %
MPC	23,9	g/dL
MPM	2,47	pg
Large Plt	12	x10 ³ cells/ μ L

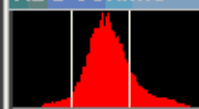
Routine CBC

WBC	H	29,61	x10 ³ cells/ μ L
RBC	L	2,01	x10 ⁶ cells/ μ L
HGB	L	6,5	g/dL
HCT	L	20,2	%
MCV	H	100,4	fL
MCH	H	32,4	pg
MCHC	L	32,3	g/dL
CHCM		34,1	g/dL
CH		33,8	pg
RDW	H	23,7	%
HDW	H	3,82	g/dL
PLT	L	115	* x10 ³ cells/ μ L
MPV	H	12,0	* fL

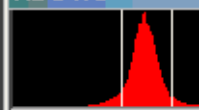
Additional Routine Parameters

%Blast Suspect	1,3	
%Hyper	3,1	
%Hypo	5,6	
%Macro	15,8	
%Micro	3,1	
RBC Fragments	0,02	x10 ⁶ cells/ μ L
RBC Ghosts	0,01	x10 ⁶ cells/ μ L
Neut X	58,1	
Neut Y	67,5	
MNx	14,0	
MNy	13,5	
%MN	26,6	
%PMN	71,2	
Cellular HGB	6,9	g/dL

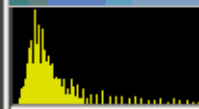
RBC Volume



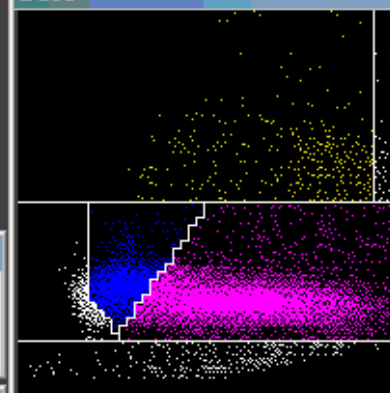
RBC HC



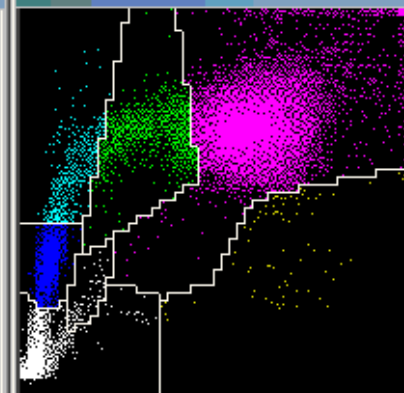
Platelet Vol



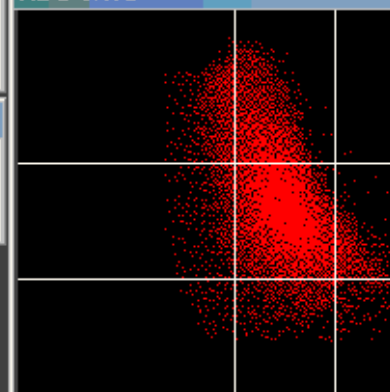
Baso



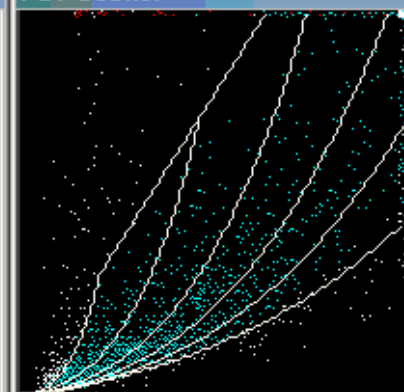
Perox



RBC V/HC



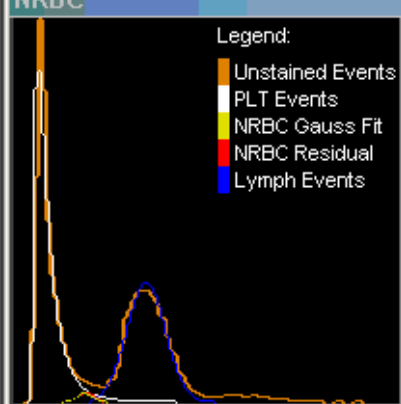
PLT Scatter



outine WBC Differential

	%	#	
WBC		H 29,61	x10 ³ cells/ μ L
Neut	H 76,4	H 22,63	x10 ³ cells/ μ L
ymph	L 15,7	4,66	x10 ³ cells/ μ L
Mono	4,0	H 1,19	x10 ³ cells/ μ L
Eos	0,3	0,10	x10 ³ cells/ μ L
Baso	1,5	H 0,44	x10 ³ cells/ μ L
LUC	2,0	H 0,59	x10 ³ cells/ μ L
NRBC			x10 ³ cells/L
LI		1,93	
MPXI		-7,3	
VBCP		31,75	x10 ³ cells/ μ L

NRBC



Morphology Flags

MICRO	+
MACRO	+++
HYPO	+
ANISO	+++
HC VAR	+
IG	+
LARGE PLT	+

Baso Rate



RBC Rate



HGB Trans



Perox Rate



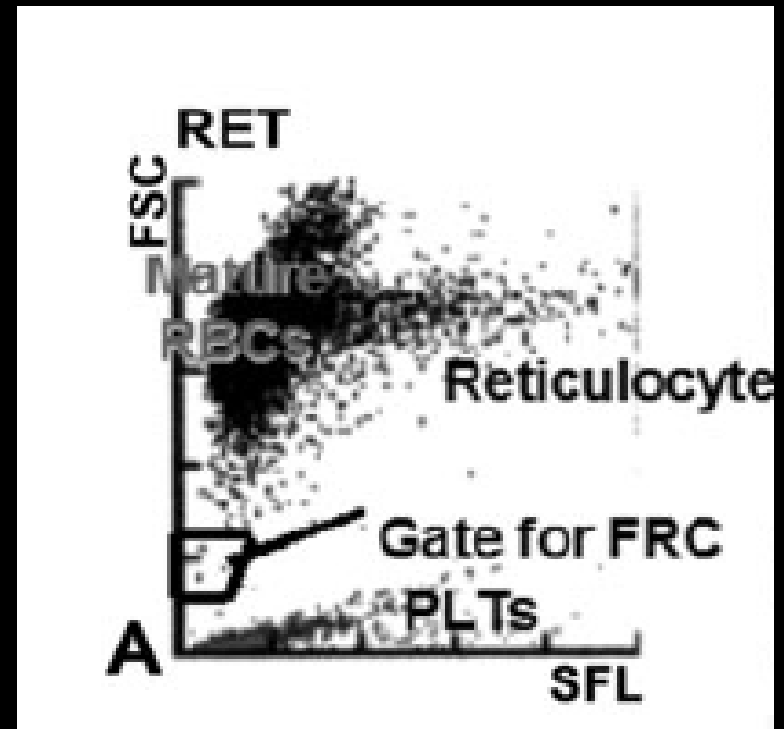
NRBC

%NRBC	
#NRBC	
WBC	H 29,61
WBCu	29,61
%Histo NRBC	0,0
%Gaussian NRBC	0,5
%BAROX NRBC	0,0
%Residual NRBC	0,0

Sample/System Flags

RBC fragments: conteggio in automazione Sysmex XE-2100

Metodo basato sull' analisi integrata dei conteggi delle piastrine e dei globuli rossi nel canale del conteggio dei reticulociti dove nel sangue intero, cimentato con un colorante fluorescente, vengono contati gli eventi con volume inferiore a quello dei GR e contenuto in RNA (fluorescenza) inferiore a quello delle piastrine.





Positive No. Campione 19181643 Nascita Rack 32 Tubo 2 Data 21/04/2001
 ID Paz Sesso Dr. Ora 16:42
 Nome Commenti

Principale Grafici WBC RBC Cumulativi Q-Flags Service HPC Ricerca(w) Ricerca(R)

Parametri

Param.	Dati	Unita'
RBC	3.20	10 ¹⁶ /uL
RBC-O	2.98	10 ¹⁶ /uL
HGB	9.2	g/dL
HCT	28.8	%
MCV	90.0	fL
MCH	28.8	pg
MCHC	31.9	g/dL
RDW-SD	51.8	fL
RDW-CV	15.8	%
PLT	56	10 ¹³ /uL
PLT-I	56	10 ¹³ /uL
PLT-O	57	10 ¹³ /uL
PDW	16.3	fL
MPV	12.1	fL
P-LCR	42.0	%
PCT	0.07	%
RET#	0.0326	10 ¹⁶ /uL
RET%	1.02	%
IRF	8.4	%
LFR	91.6	%
MFR	7.9	%
HFR	0.5	%
NRBC#		10 ¹³ /uL

Reticolociti

Param.	Dati	Unita'
RET-He	29.4	pg
RBC-He	31.6	pg
D-He	-2.2	pg
RET-Y	167.7	ch
RBC-Y	175.2	ch
IRF-Y	155.5	ch
RPI	0.4	
FRC#	0.0106	10 ¹⁶ /uL
FRC%	0.33	%

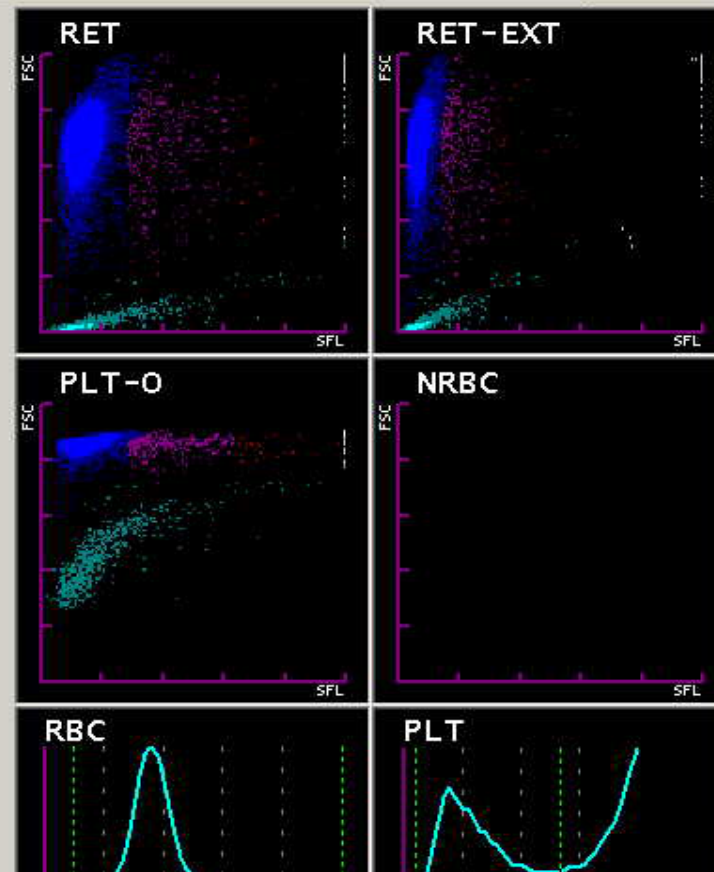
Flag(s)

RBC/RET

Anemia

PLT

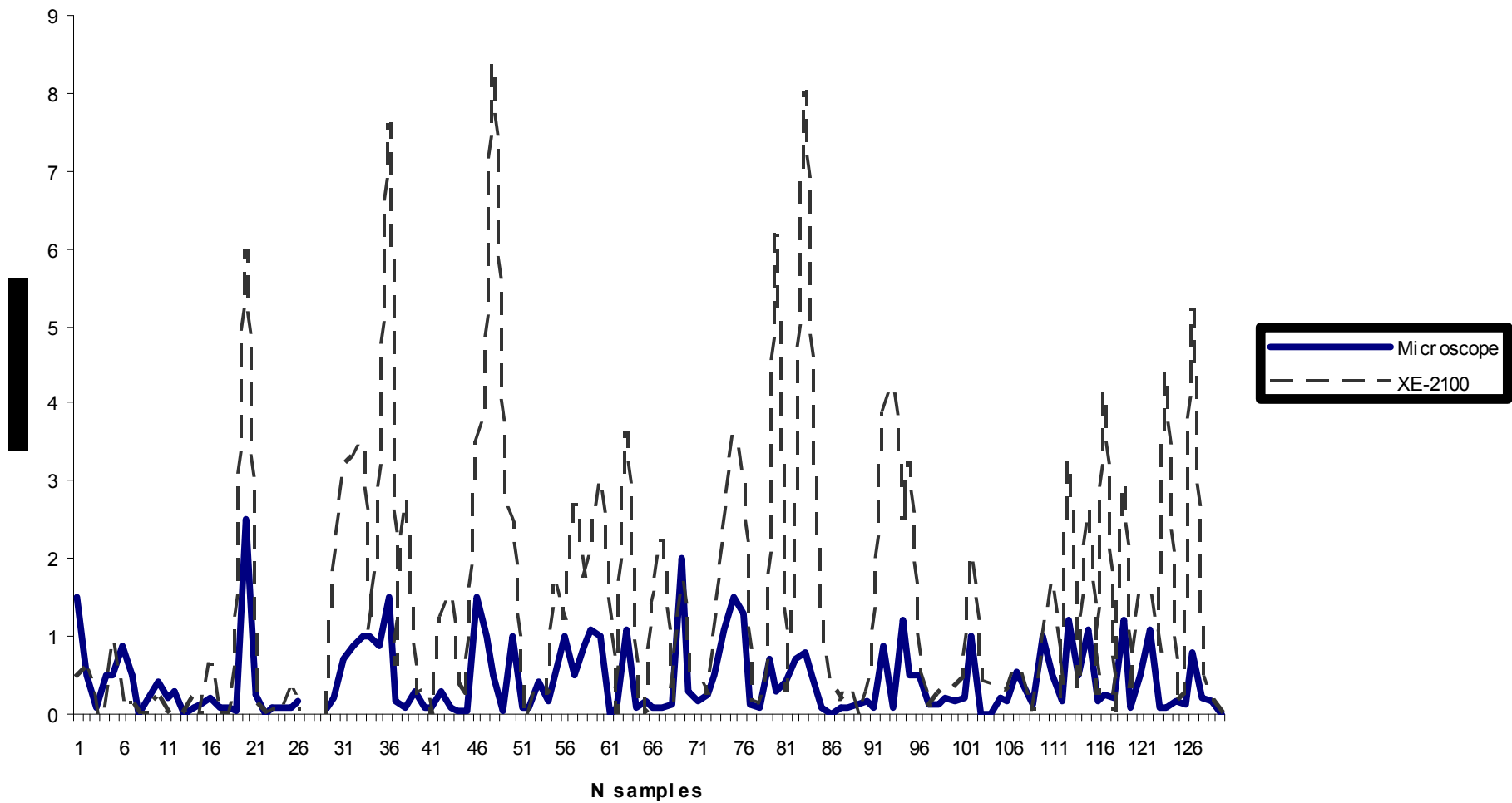
Thrombo-

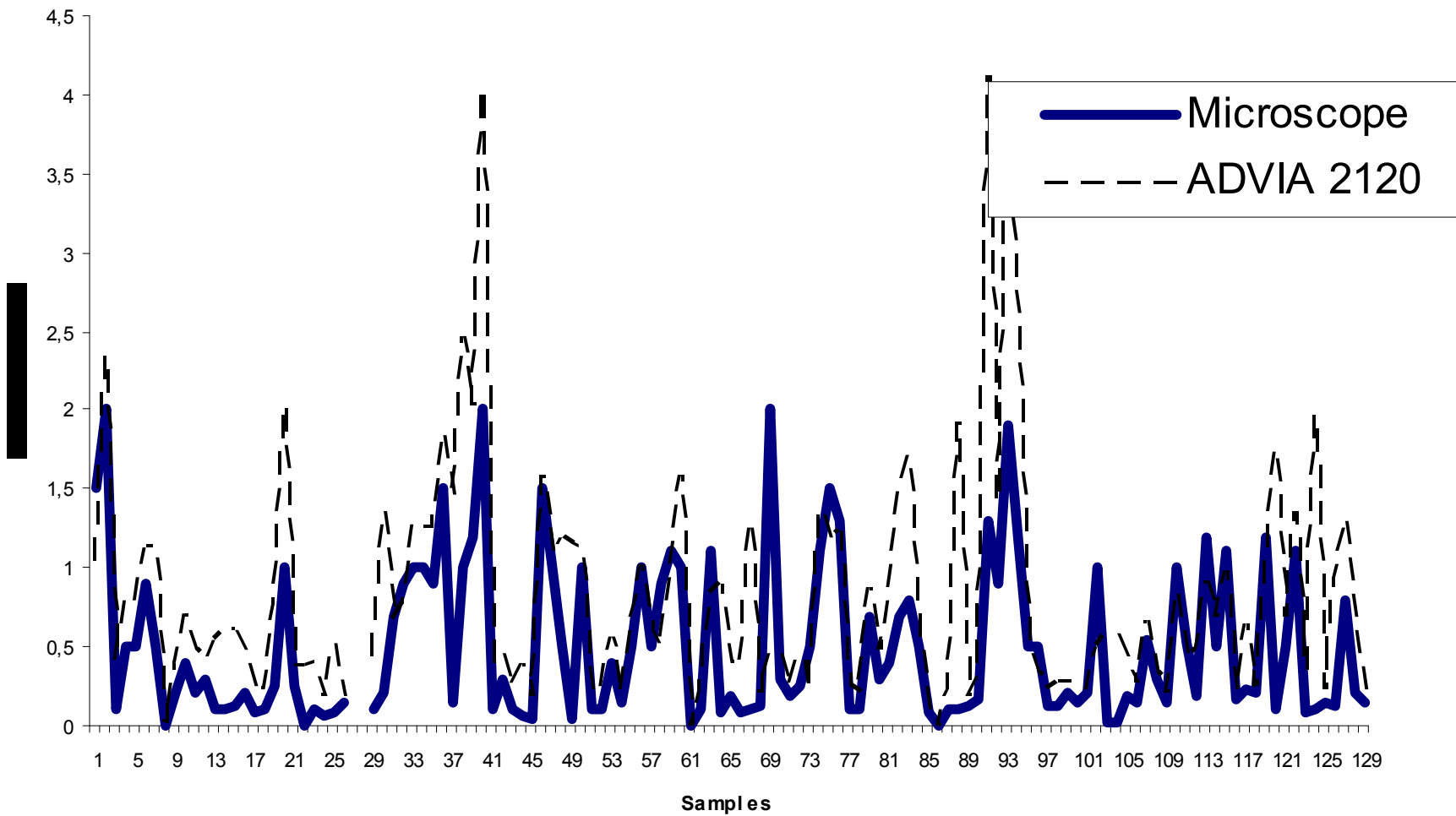


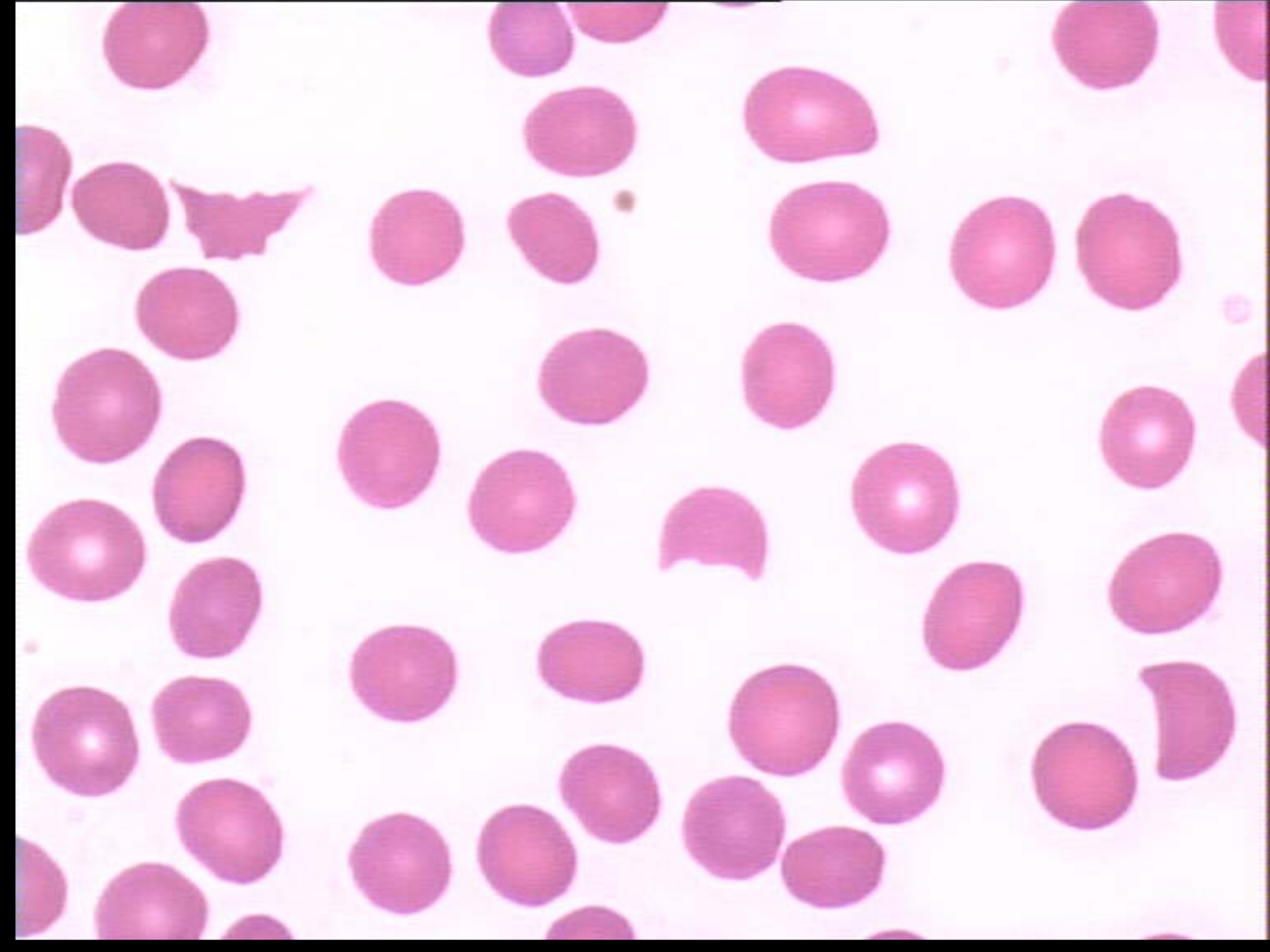
Valuazione clinico-strumentale: materiali e metodi

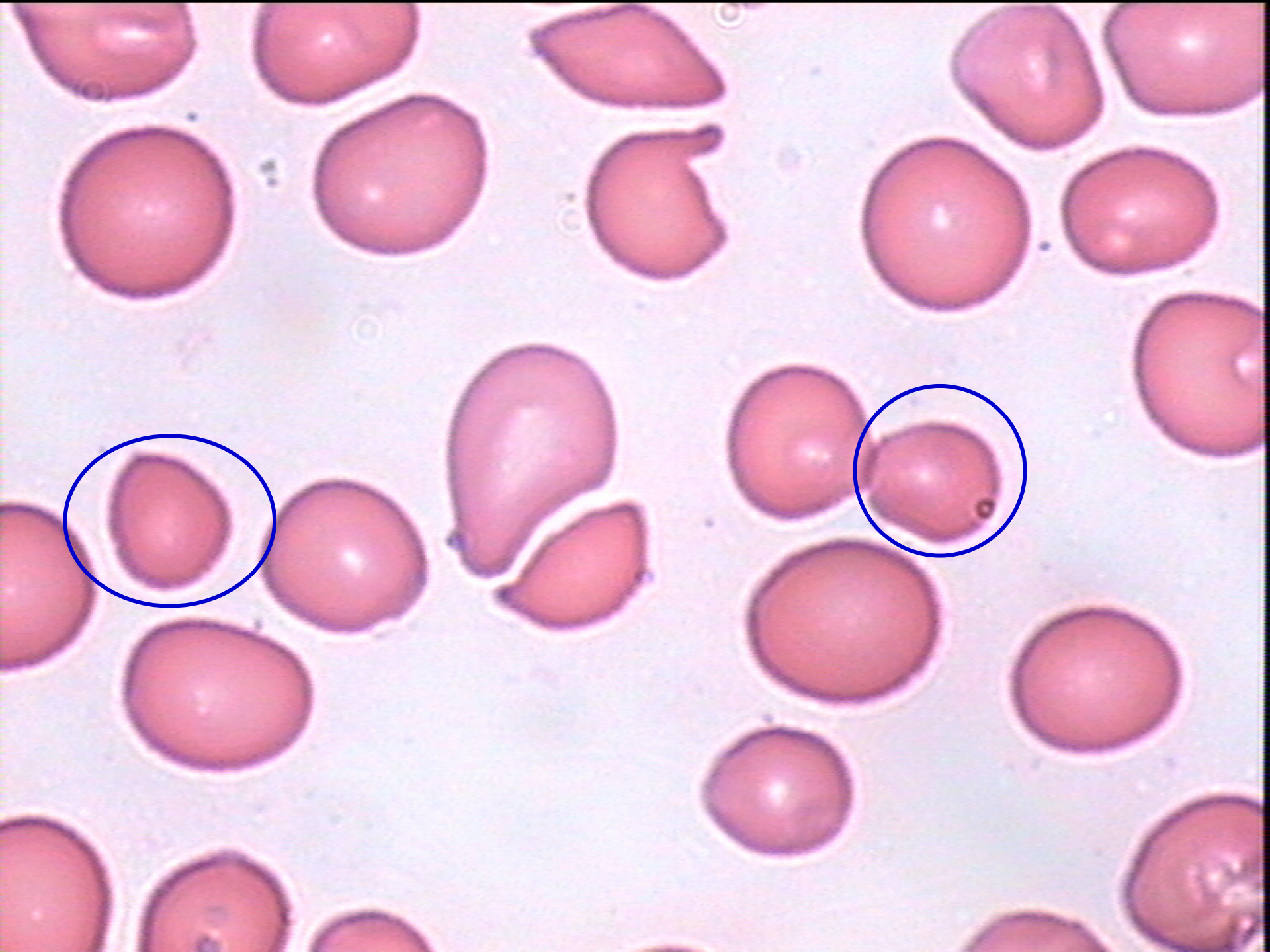
150 campioni selezionati dalla routine in un periodo di tre settimane, analizzati con:

- Bayer ADVIA 2120
- Sysmex XE-2100 modalità Retics
- Metodo di riferimento:
Conta microscopica effettuata da due specialisti su due diversi strisci di sangue periferico /1000 GR









Positive

Sample No. 22260194

Birth

Ward

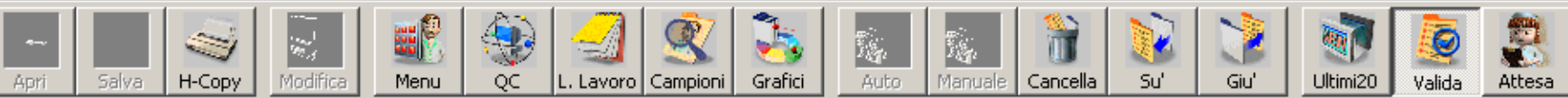
Date 08/05/2007

XE-2100 - [Grafici]

Microscope: 0,2% on 1000 RBC

XE-2100 - [Grafici]

File Edita Mostra Campioni Azioni Invio Settaggi Finestre Info



Name

Comment

Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Research(w) Research(R) Research(P)

Items

Param.	Dati	Unità'
RBC	2.23	- 10 ⁶ /uL
RBC-O	2.17	10 ⁶ /uL
HGB	6.2	- g/dL
HCT	18.7	- %
MCV	83.9	- fL
MCH	27.8	pg
MCHC	33.2	g/dL
RDW-SD	53.8	fL
RDW-CV	18.7	+ %
PLT	54	* 10 ³ /uL
PLT-I	54	* 10 ³ /uL
PLT-O	44	* 10 ³ /uL
PDW	----	fL
MPV	----	fL
P-LCR	----	%
PCT	----	%
RET#	0.2241	10 ⁶ /uL
RET%	10.05	%
IRF	22.4	%
LFR	77.6	%
MFR	13.5	%
HFR	8.9	%

Extended RET

Param.	Dati	Unità'
RET-He	29.1	pg
RBC-He	28.1	pg
D-He	1.0	pg
RET-Y	172.4	ch
RBC-Y	168.9	ch
IRF-Y	163.2	ch

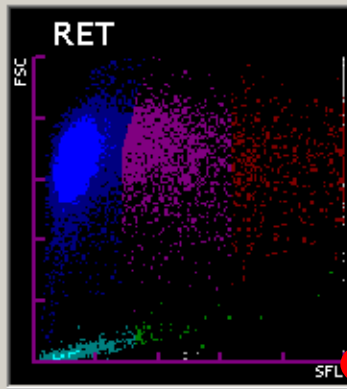
Param.	Dati	Unità'
FRC#	0.0096	10 ⁶ /uL
FRC%	0.43	%

Items

Param.	Dati	Unità'
NRBC#	0.28	* 10 ³ /uL
NRBC%	2.5	* /100WBC

Flag(s)

RBC/RET	PLT
Reticulo	PLT Clumps?
Anemia	PLT Abn Dst
	Thrombo-



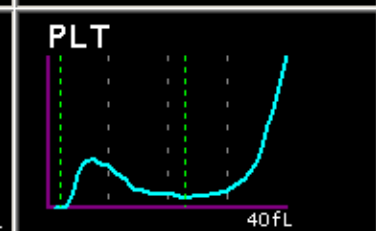
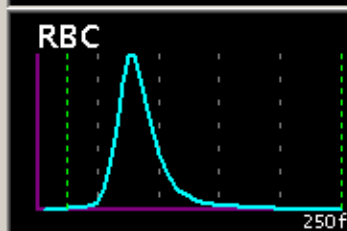
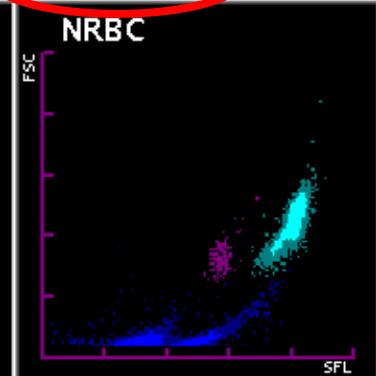
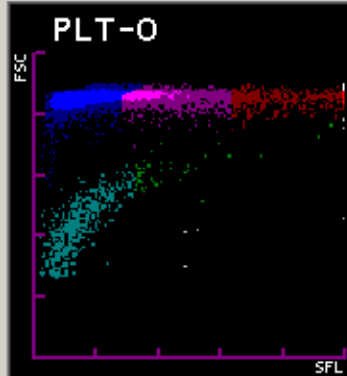
Extended Differential

Param.	Dati	Unità'
IG#	0.70	* 10 ³ /uL
IG%	6.3	* %

Param.	Dati	Unità'
HPC#		10 ³ /uL

Parametri aggiuntivi

Param.	Dati	Unità'
RET-He	29.1	pg
IPF	7.1	* %





Name Comment

Main Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Research(W) Research(R) Rese.

Param.	Dati	Unita'
WBC &	10.08	10 ⁹ /uL
RBC	1.99	10 ⁶ /uL
HGB	5.8	g/dL
HCT	17.0	%
MCV	85.4	fL
MCH	29.1	pg
MCHC	34.1	g/dL
PLT	45	10 ³ /uL
RDW-SD	55.0	+ fL
RDW-CV	18.5	+ %
PDW	17.5	+ fL
MPV	11.1	fL
P-LCR	35.9	%
PCT	0.05	- %
RET%	9.11	%
RET#	0.1813	10 ⁶ /uL
IRF	26.1	%
LFR	73.9	%
MFR	15.1	%
HFR	11.0	%
NRBC#	0.27	10 ³ /uL
NRBC%	2.7	/100WBC

WBC Differential

Param.	Dati	Unita'
FRC#	0.0131	10 ⁶ /uL
FRC%	0.66	%

Items

Param.	Dati	Unita'
NRBC#	0.27	10 ³ /uL
NRBC%	2.7	/100WBC

Extended Differential

Param.	Dati	Unita'
IG#	0.54	10 ³ /uL
IG%	5.4	%

Param.	Dati	Unita'
HPC#		10 ³ /uL

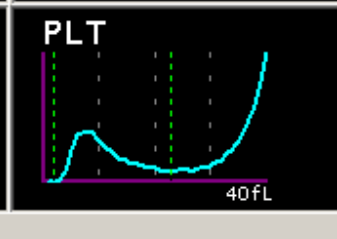
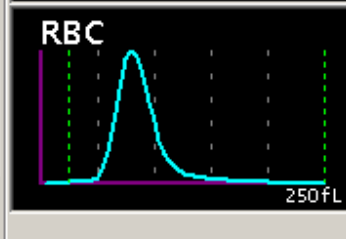
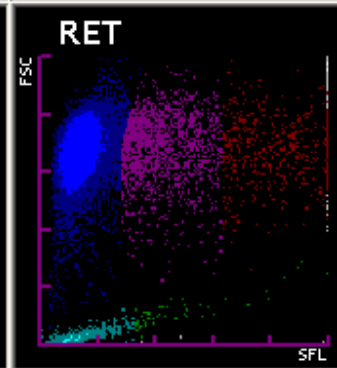
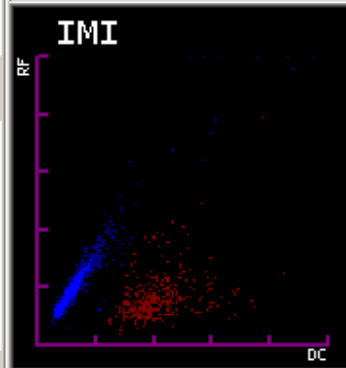
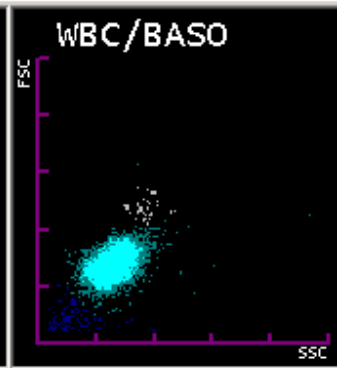
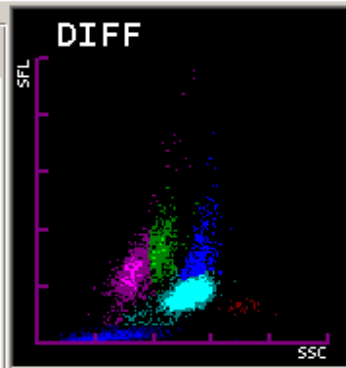
Parametri aggiuntivi

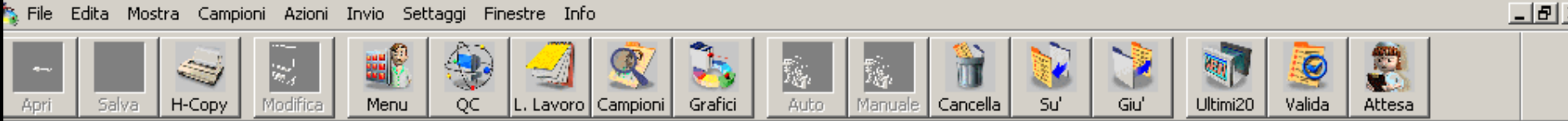
Param.	Dati	Unita'
RET-He	29.2	pg
IPF	8.6	%

Flag(s)
WBC
Blasts?
NRBC Present
IG Present

RBC/RET
Reticulo Anemia

PLT
Thrombo-





Name Comment

Main Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Research(W) Research(R) Rese.

Param.	Dati	Unita'
WBC &	12.08	10 ³ /uL
RBC	2.13	10 ⁶ /uL
HGB	6.2	g/dL
HCT	18.3	%
MCV	85.9	fL
MCH	29.1	pg
MCHC	33.9	g/dL
PLT	44	10 ³ /uL
RDW-SD	53.1	fL
RDW-CV	18.2	%
PDW	----	fL
MPV	----	fL
P-LCR	----	%
PCT	----	%
RET%	10.10	%
RET#	0.2151	10 ⁶ /uL
IRF	28.2	%
LFR	71.8	%
MFR	14.9	%
HFR	13.3	%
NRBC#	0.56	10 ³ /uL
NRBC%	4.7	/100WBC

WBC Differential

Param.	Dati	Unita'
FRC#	0.0158	10 ⁶ /uL
FRC%	0.74	%

Items

Param.	Dati	Unita'
NRBC#	0.56	10 ³ /uL
NRBC%	4.7	/100WBC

Extended Differential

Param.	Dati	Unita'
IG#	0.83	10 ³ /uL
IG%	6.9	%

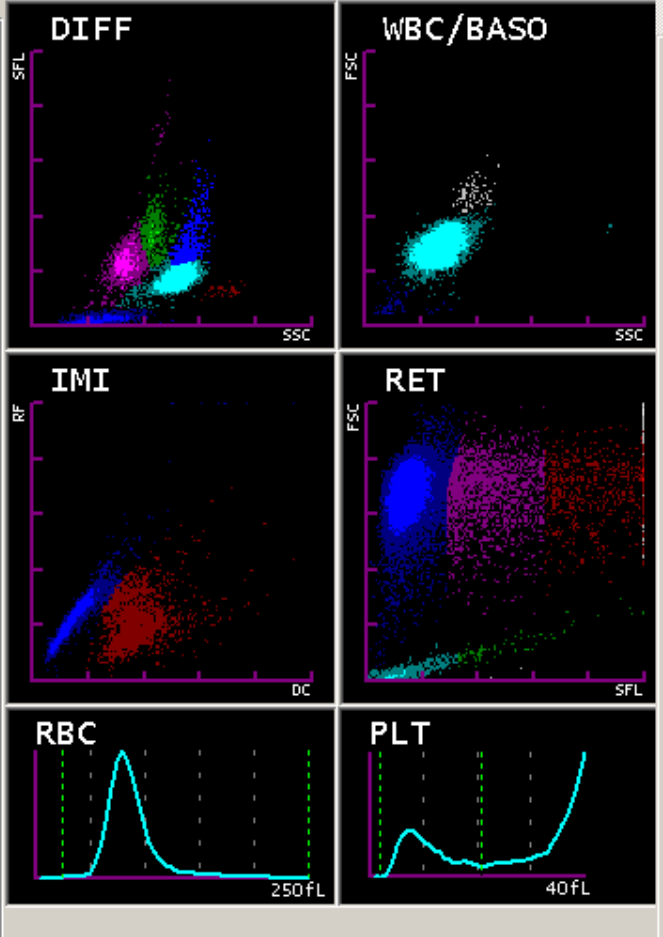
Parametri aggiuntivi

Param.	Dati	Unita'
HPC#		10 ³ /uL
RET-He	29.2	pg
IPF	11.4	%

Flag(s)
WBC
Blasts?
Left Shift?
NRBC Present
IG Present

RBC/RET
Reticulo
Anemia

PLT
PLT Abn Dst
Thrombo-





Name Comment

Main Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Research(w) Research(R) Rese.

Param.	Dati	Unita'
WBC	11.44	10 ³ /uL
RBC	2.19	10 ⁶ /uL
HGB	6.3	g/dL
HCT	19.2	%
MCV	87.7	fL
MCH	28.8	pg
MCHC	32.8	g/dL
PLT	48	10 ³ /uL
RDW-SD	52.5	fL
RDW-CV	17.5	%
PDW	----	fL
MPV	----	fL
P-LCR	----	%
PCT	----	%
RET%	8.50	%
RET#	0.1862	10 ⁶ /uL
IRF	25.6	%
LFR	74.4	%
MFR	16.1	%
HFR	9.5	%
NRBC#	0.71	10 ³ /uL
NRBC%	6.2	/100WBC

WBC Differential		
Param.	Dati	Unita'
FRC#	0.0250	10 ⁶ /uL
FRC%	1.14	%

Items		
Param.	Dati	Unita'
NRBC#	0.71	10 ³ /uL
NRBC%	6.2	/100WBC

Extended Differential		
Param.	Dati	Unita'
IG#	1.06	10 ³ /uL
IG%	9.3	%

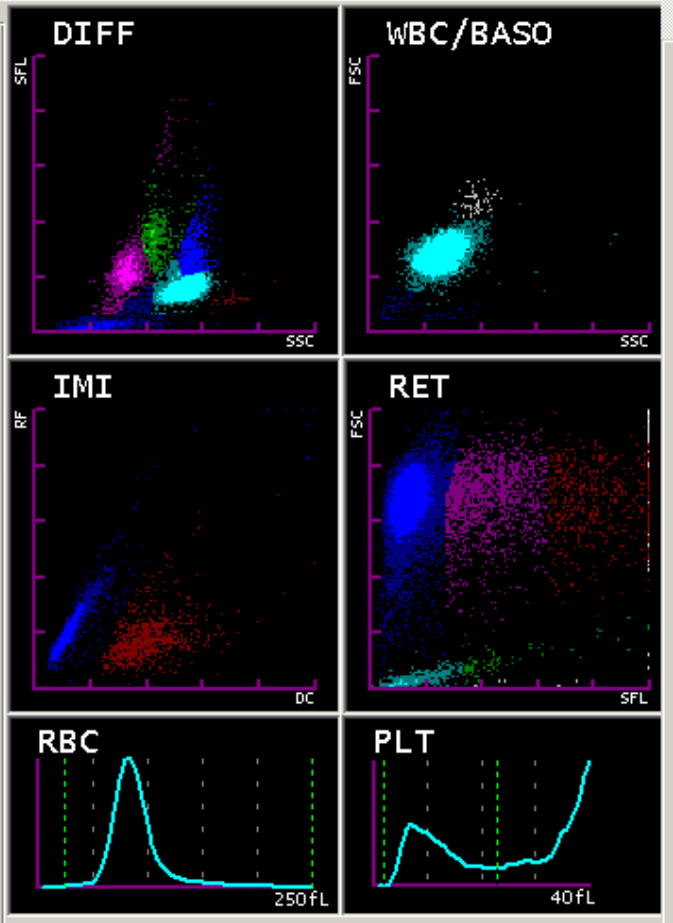
Param.	Dati	Unita'
HPC#		10 ³ /uL

Parametri aggiuntivi		
Param.	Dati	Unita'
RET-He	29.4	pg
IPF	11.6	%

Flag(s)
WBC
Blasts?
Imm Gran?
Atypical Ly?
NRBC Present

RBC/RET
Reticulo
Anemia

PLT
PLT Abn Dst
Thrombo-





Name Comment

Main Graph WBC/NRBC RBC/PLT Cumulative Q-Flags Service HPC Research(W) Research(R) Rese.

Param.	Dati	Unita'
WBC &	9.47	10 ³ /uL
RBC	1.88 -	10 ⁶ /uL
HGB	5.5 -	g/dL
HCT	16.5 -	%
MCV	87.8	fL
MCH	29.3	pg
MCHC	33.3	g/dL
PLT &	35 -	10 ³ /uL
RDW-SD	49.5	fL
RDW-CV	17.9 +	%
PDW	----	fL
MPV	----	fL
P-LCR	----	%
PCT	----	%
RET%	10.63	%
RET#	0.1998	10 ⁶ /uL
IRF	33.4	%
LFR	66.6	%
MFR	19.5	%
HFR	13.9	%
NRBC#	1.94	10 ³ /uL
NRBC%	20.5	/100WBC

WBC Differential

Param.	Dati	Unita'
FRC#	0.0355	10 ⁶ /uL
FRC%	1.88	%

Items

Param.	Dati	Unita'
NRBC#	1.94	10 ³ /uL
NRBC%	20.5	/100WBC

Extended Differential

Param.	Dati	Unita'
IG#	0.93 *	10 ³ /uL
IG%	9.8 *	%

Param.	Dati	Unita'
HPC#		10 ³ /uL

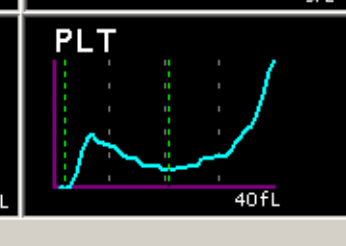
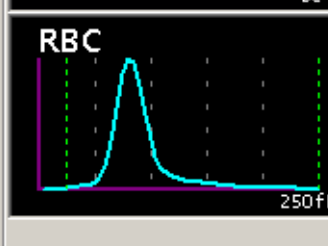
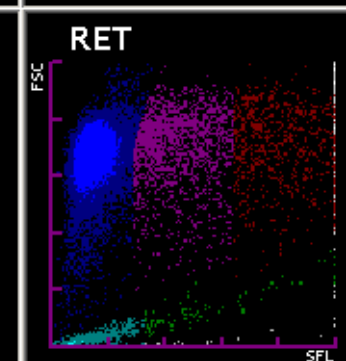
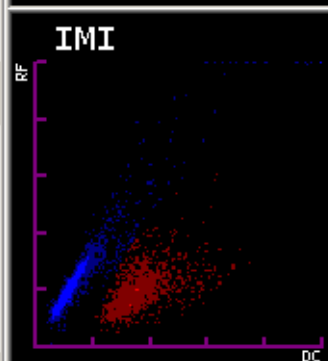
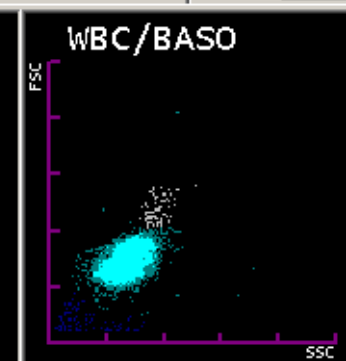
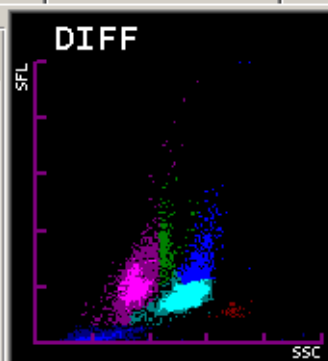
Parametri aggiuntivi

Param.	Dati	Unita'
RET-He	30.8	pg
IPF	17.2	%

Flag(s)
WBC
Imm Gran?
NRBC Present

RBC/RET
Reticulo
Anemia

PLT
PLT Abn Dst
Thrombo-



Proposal

Barcelona, 4th November 2008

to create a panel of experts with the following finalities:

- definition of morphological criteria for those fragments that should be classified as schistocytes
- method definition
- inter-observer and intra-observer study for method validation
- guidelines publication
- publication of an experimental work on correlation and validation of different methods for automated fragment count



International Council for Standardization in Haematology

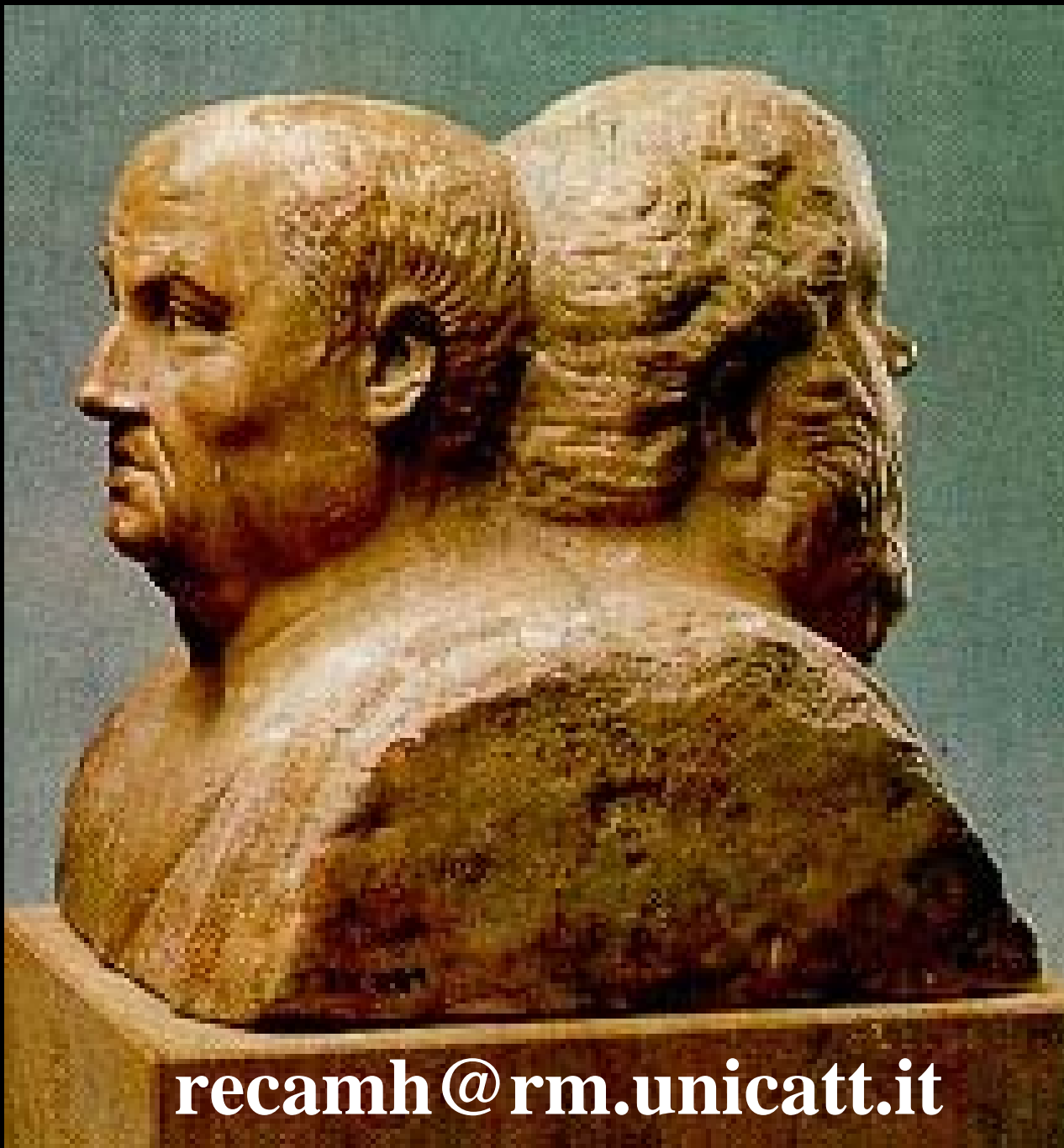
Committee for the Standardization of Schistocyte Counting

Members of Committee

Carol Briggs (UK)
Giuseppe d'Onofrio (IT)
Wendy Erber (UK)
Josep Maria Jou (ES)
Szu-Hee Lee (AUS)
Jean-François Lesesve (FR)
Stefanie McFadden (USA)
Joan Lluís Vives Corrons (ES)
Nagai Yutaka (JP)

Chair: Gina Zini (IT)

kick off: Barcelona, November 4th, 2008



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