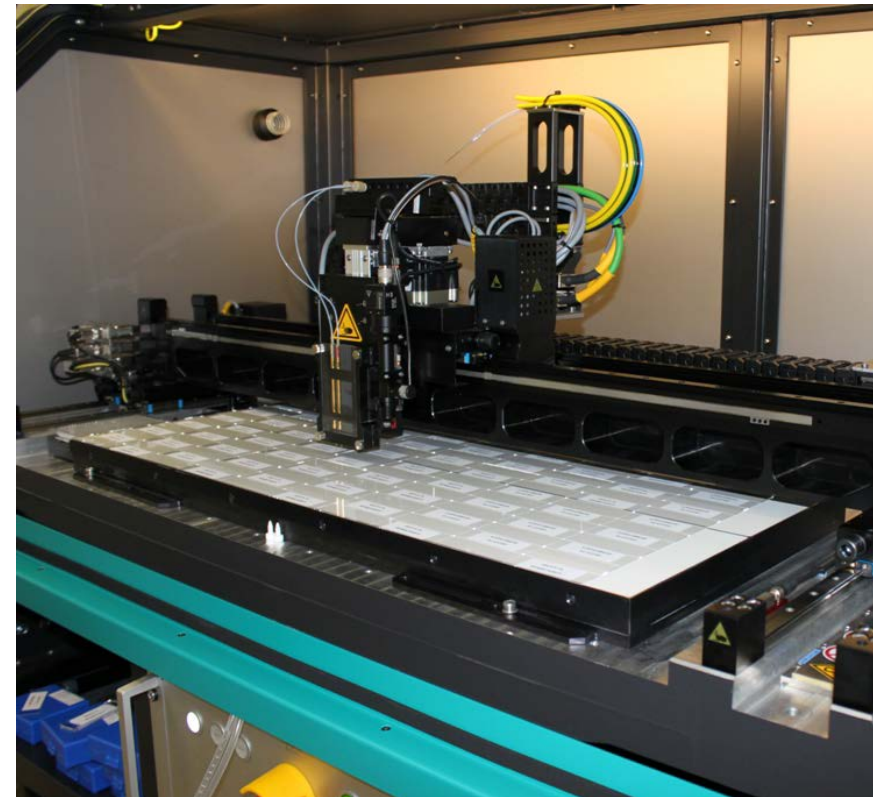
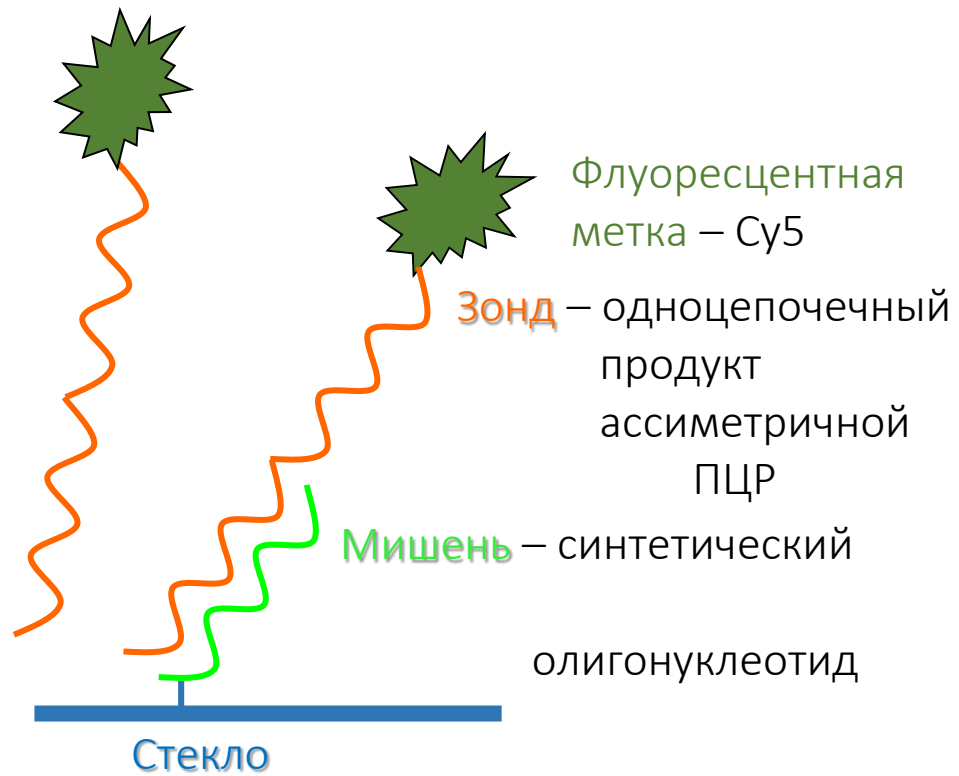
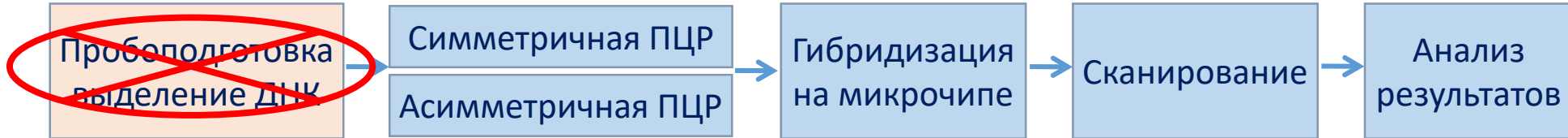
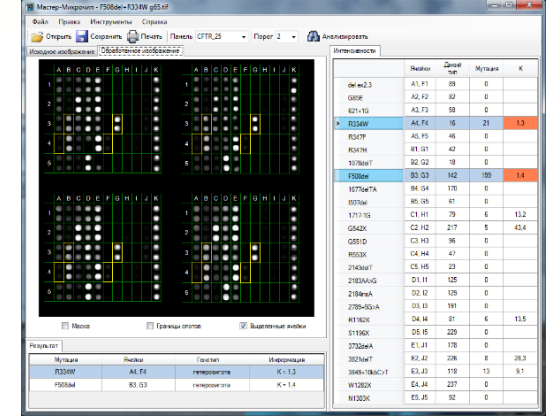
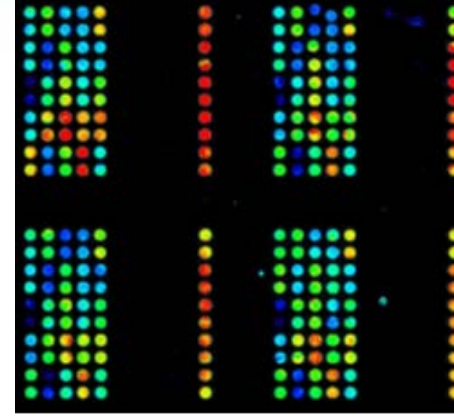
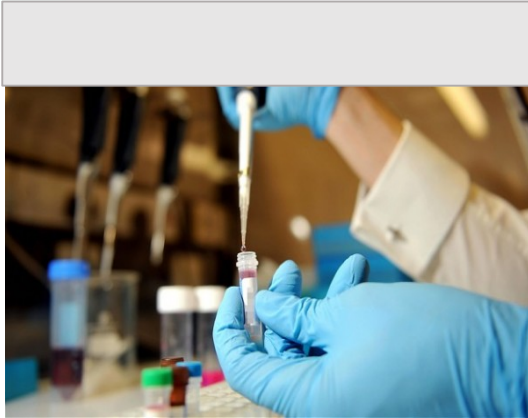


Реализация технологии

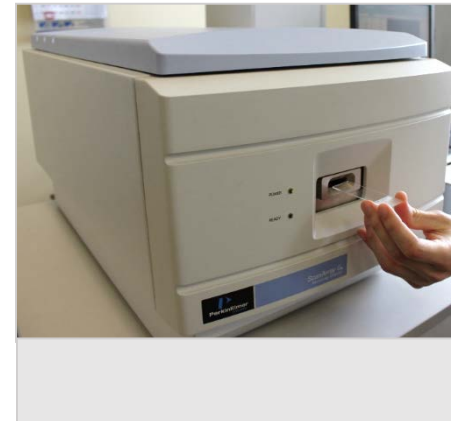


Проведение анализа

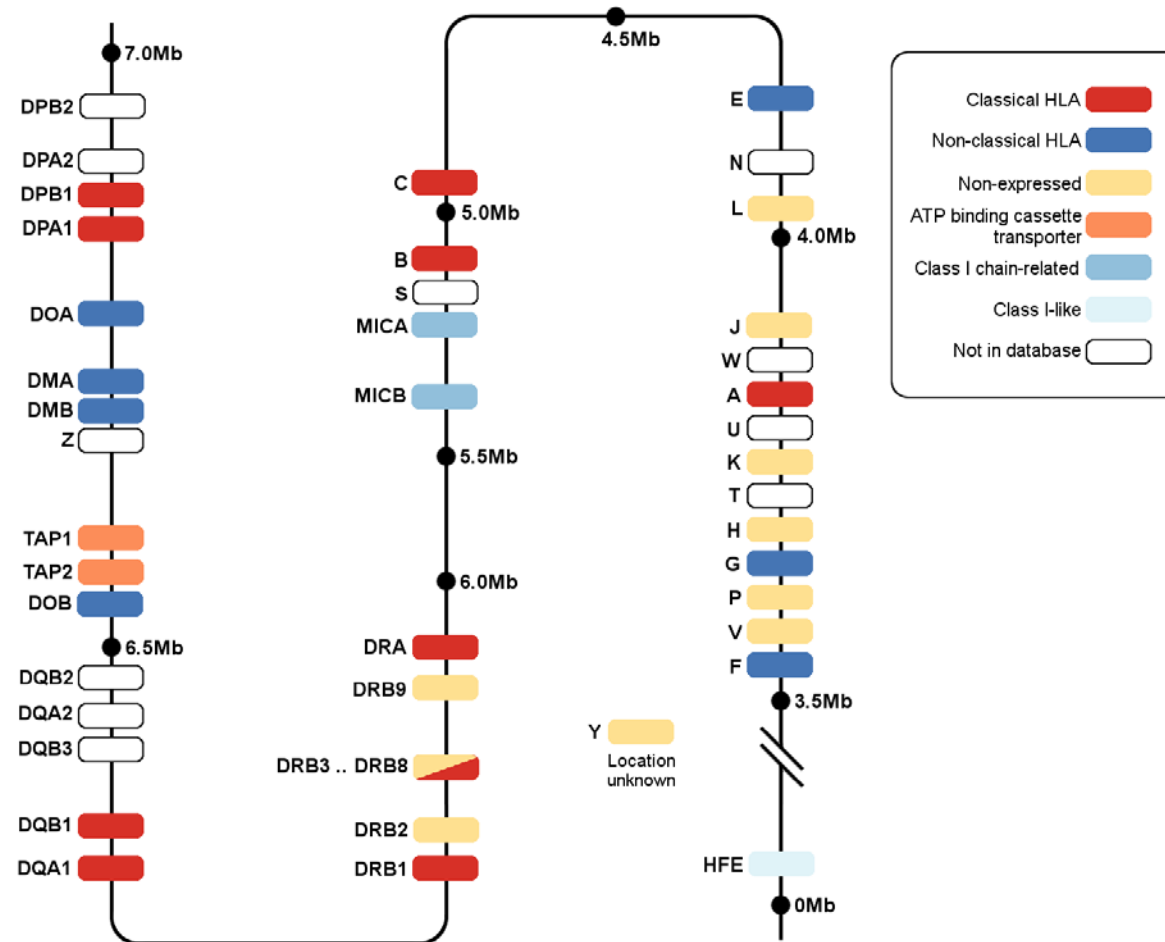


Образец:

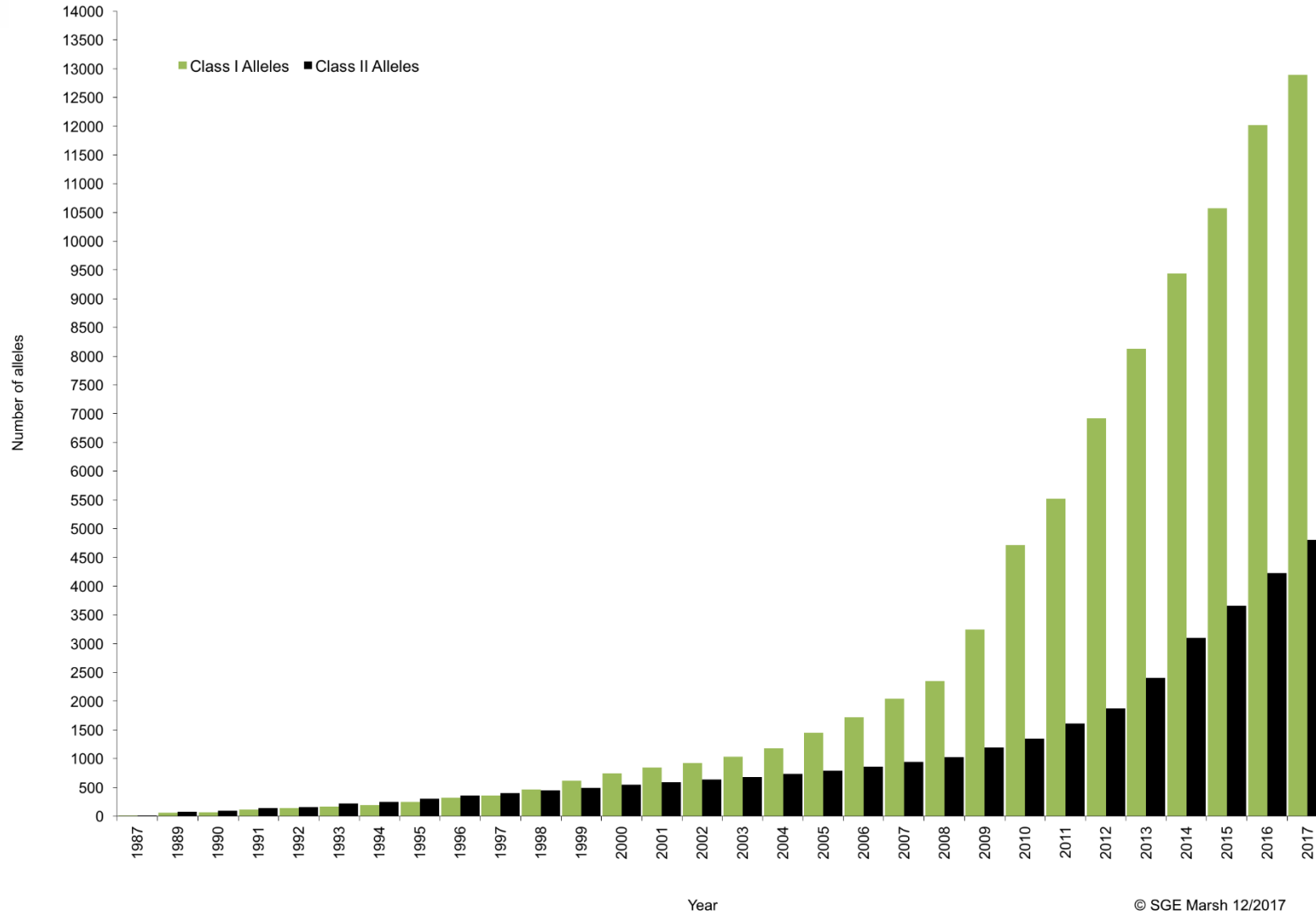
- Цельная кровь
- Сухие пятна
- Буккальный эпителий



Геномная организация HLA-комплекса



Аллельный полиморфизм



Аллельный полиморфизм

– существование множества устойчивых форм одного гена (аллелей) в популяции

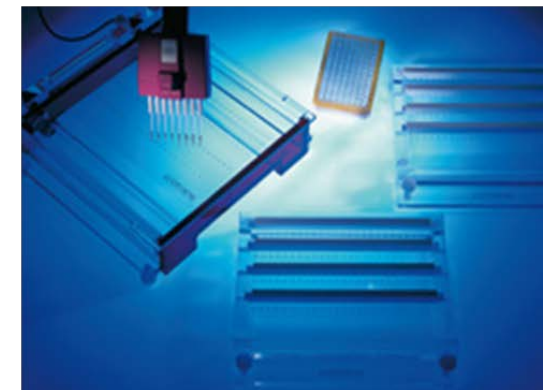
HLA I class	Numbers of HLA Alleles	Numbers of Alleles groups
HLA-A	4081	21
HLA-B	4 950	35
HLA-C	3 685	14

HLA II class	Numbers of HLA Alleles	Numbers of Alleles groups
HLA-DR A	7	1
HLA-DR B	2 440	13
HLA-DQ A1	94	6
HLA-DQ B1	1178	5



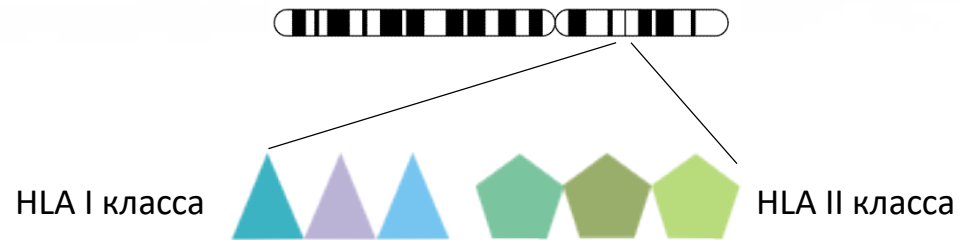
Методы типирования

- Sequence Specific Primer (SSP)
- Sequence Specific Oligonucleotides (SSO)
- Sequence-based typing (SBT)
- Next generation sequencing (NGS)



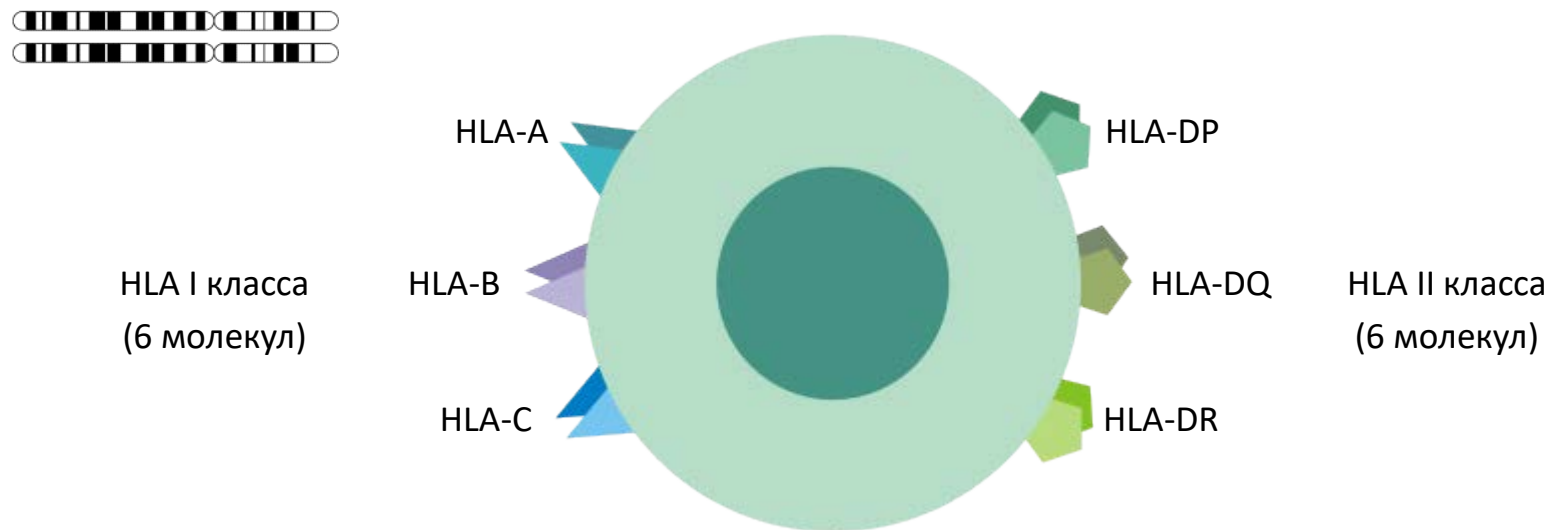
Гаплотип

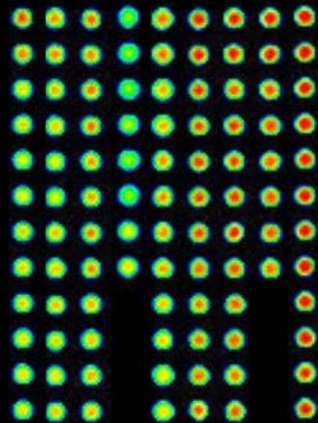
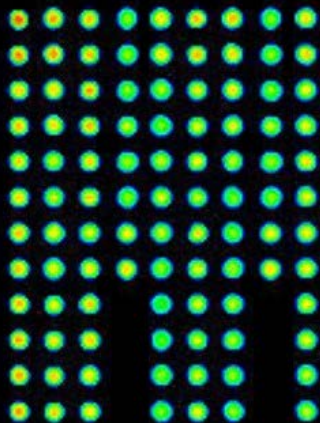
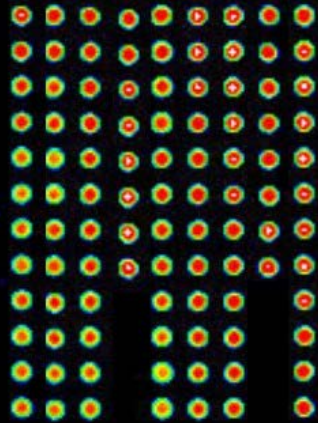
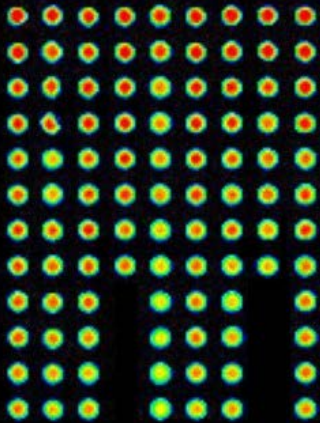
– набор генов HLA I и II классов, расположенных на одной хромосоме и наследуемых вместе.



Кодомигрантная экспрессия

– экспрессия молекул HLA, закодированных в обеих хромосомах – от отца и матери, т.е. **два гаплотипа**





E1 - A*03

E2 - A*25, A*32 кроме A*32:03

E3 - A*23

E4 - A*24

E5 - A*29

E6 - A*30, 01:02, 01:20, 01:190

F1 - A*02

F2 - A*80

F3 - A*36, A*03:260, A*01, кроме 01:69:01

F4 - A*43, A*29, A*68:130:02

F5 - A*01, A*26, A*34, A*43, A*80, 03:57, 24:302, 30:90 кроме 01:229, 26:03:01

F6 - A*11

G1 - A*30

G2 - A*32, A*74, A*02:65

G3 - A*33, кроме 33:03, 33:123N

G4 - A*31, A*33

G5 - A*69, A*02, кроме 02:02, 02:05, 02:08, 02:14, 02:65, 02:131, 02:376, 02:646, 02:651, 02:655

G6 - A*66, A*25, A*26, A*34

H1 - A*68, 02:651

H2 - A*34

H3 - A*02, A*03, A*29, A*30, A*31, A*32, A*33, A*34, A*36, A*68, A*69, A*74, A*24:03, A*24:207:02, A*24:387

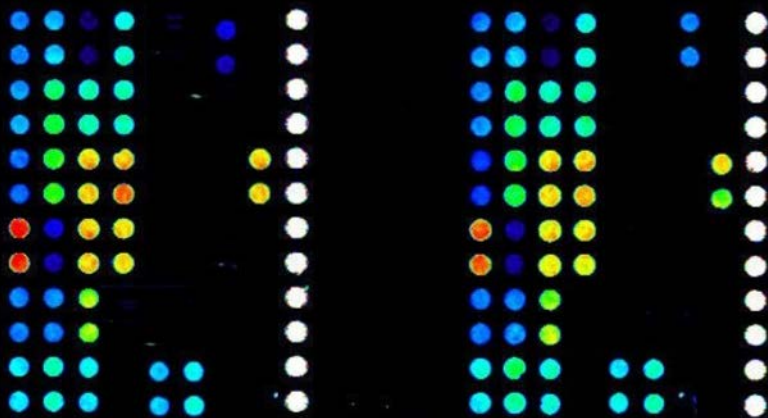
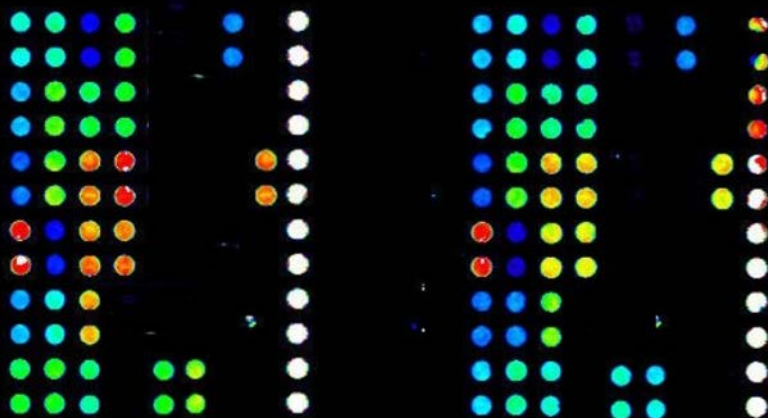
Кроме A*02:16, A*02:19, A*02:77, A*02:131 A*02:376, A*29:03, A*32:26:02, A*32:101Q

D4 - A*01, A*02, A*03, A*11, A*23, A*24, A*30, A*31, A*32, A*36, A*74, A*80

H4 - A*25, A*26, A*33, A*66, A*68, A*69

	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I	
1	●	●	●	●	●	●	●	●	●	1	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	2	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	●	●	●	●	●	3	●	●	●	●	●	●	●	●	●	●
4	●	●	●	●	●	●	●	●	●	4	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	●	●	●	●	5	●	●	●	●	●	●	●	●	●	●
6	●	●	●	●	●	●	●	●	●	6	●	●	●	●	●	●	●	●	●	●
1	●	●	●	●	●	●	●	●	●	1	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	2	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	●	●	●	●	●	3	●	●	●	●	●	●	●	●	●	●
4	●	●	●	●	●	●	●	●	●	4	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	●	●	●	●	5	●	●	●	●	●	●	●	●	●	●
6	●	●	●	●	●	●	●	●	●	6	●	●	●	●	●	●	●	●	●	●

- E1 - A*03
- E2 – A*25, A*32 кроме A*32:03
- E3 - A*23
- E4 - A*24
- E5 - A*29
- E6 - A*30, 01:02, 01:20, 01:190
- F1 – A*02
- F2 – A*80
- F3 - A*36, A*03:260, A*01, кроме 01:69:01
- F4 - A*43, A*29, A*68:130:02
- F5 - A*01, A*26, A*34, A*43, A*80, 03:57, 24:302, 30:90 кроме 01:229, 26:03:01
- F6 – A*11
- G1 – A*30
- G2 - A*32, A*74, A*02:65
- G3 - A*33, кроме 33:03, 33:123N
- G4 - A*31, A*33
- G5 - A*69, A*02, кроме 02:02, 02:05, 02:08, 02:14, 02:65, 02:131, 02:376, 02:646, 02:651, 02:655
- G6 - A*66, A*25, A*26, A*34
- H1 - A*68, 02:651
- H2 - A*34
- H3 - A*02, A*03, A*29, A*30, A*31, A*32, A*33, A*34, A*36, A*68, A*69, A*74, A*24:03, A*24:207:02, A*24:387
- Кроме A*02:16, A*02:19, A*02:77, A*02:131 A*02:376, A*29:03, A*32:26:02, A*32:101Q
- D4 – A*01, A*02, A*03, A*11, A*23, A*24, A*30, A*31, A*32, A*36, A*74, A*80
- H4 – A*25, A*26, A*33, A*66, A*68, A*69



E1 - A*03

E2 - A*25, A*32 кроме A*32:03

E3 - A*23

E4 - A*24

E5 - A*29

E6 - A*30, 01:02, 01:20, 01:190

F1 - A*02

F2 - A*80

F3 - A*36, A*03:260, A*01, кроме 01:69:01

F4 - A*43, A*29, A*68:130:02

F5 - A*01, A*26, A*34, A*43, A*80, 03:57, 24:302, 30:90 кроме 01:229, 26:03:01

F6 - A*11

G1 - A*30

G2 - A*32, A*74, A*02:65

G3 - A*33, кроме 33:03, 33:123N

G4 - A*31, A*33

G5 - A*69, A*02, кроме 02:02, 02:05, 02:08, 02:14, 02:65, 02:131, 02:376, 02:646, 02:651, 02:655

G6 - A*66, A*25, A*26, A*34

H1 - A*68, 02:651

H2 - A*34

H3 - A*02, A*03, A*29, A*30, A*31, A*32, A*33, A*34, A*36, A*68, A*69, A*74, A*24:03, A*24:207:02, A*24:387

Кроме A*02:16, A*02:19, A*02:77, A*02:131 A*02:376, A*29:03, A*32:26:02, A*32:101Q

D4 - A*01, A*02, A*03, A*11, A*23, A*24, A*30, A*31, A*32, A*36, A*74, A*80

H4 - A*25, A*26, A*33, A*66, A*68, A*69

	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I		
1	●	●	●	●				●	●		1	●	●	●	●				●	●	
2	●	●	●	●					●		2	●	●	●	●					●	●
3	●	●	●	●					●		3	●	●	●	●					●	●
4	●	●	●	●					●		4	●	●	●	●					●	●
5	●	●	●	●					●		5	●	●	●						●	●
6	●	●	●	●					●		6	●	●	●						●	●
1	●	●	●	●				●	●		1	●	●	●	●				●	●	
2	●	●	●	●					●		2	●	●	●	●					●	●
3	●	●	●	●					●		3	●	●	●	●					●	●
4	●	●	●	●					●		4	●	●	●	●					●	●
5	●	●	●	●					●		5	●	●	●						●	●
6	●	●	●	●					●		6	●	●	●						●	●

A*11*30

E1 - A*03

E2 - A*25, A*32 кроме A*32:03

E3 - A*23

E4 - A*24

E5 - A*29

E6 - A*30, 01:02, 01:20, 01:190

F1 - A*02

F2 - A*80

F3 - A*36, A*03:260, A*01, кроме 01:69:01

F4 - A*43, A*29, A*68:130:02

F5 - A*01, A*26, A*34, A*43, A*80, 03:57, 24:302, 30:90 кроме 01:229, 26:03:01

F6 - A*11

G1 - A*30

G2 - A*32, A*74, A*02:65

G3 - A*33, кроме 33:03, 33:123N

G4 - A*31, A*33

G5 - A*69, A*02, кроме 02:02, 02:05, 02:08, 02:14, 02:65, 02:131, 02:376, 02:646, 02:651, 02:655

G6 - A*66, A*25, A*26, A*34

H1 - A*68, 02:651

H2 - A*34

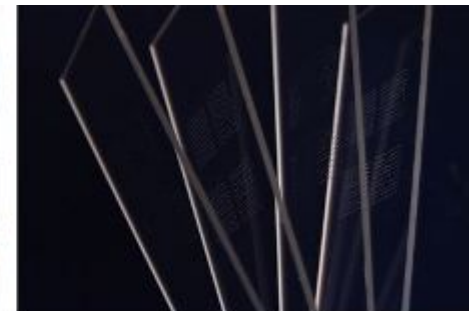
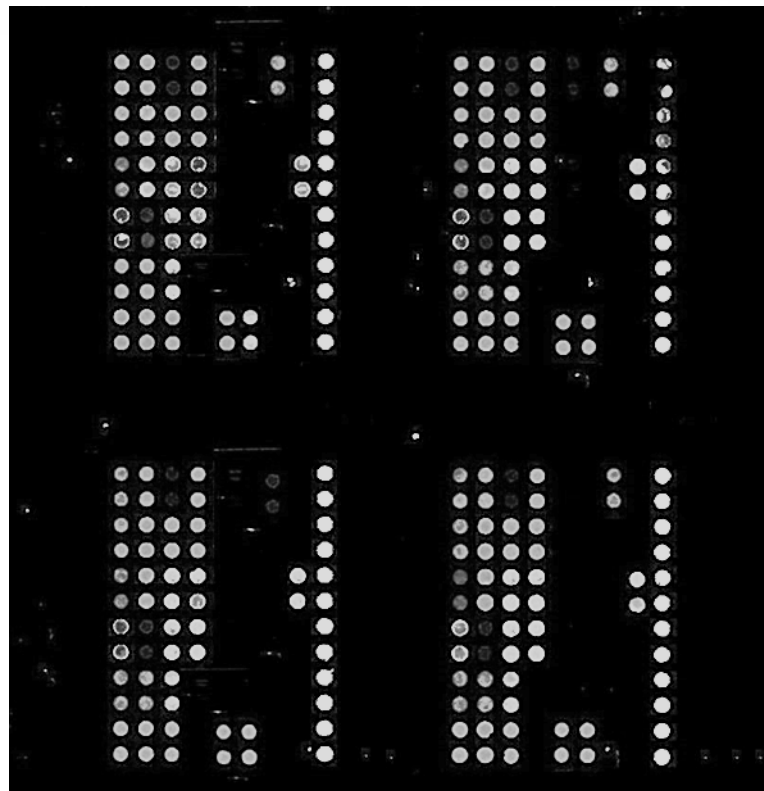
H3 - A*02, A*03, A*29, A*30, A*31, A*32, A*33, A*34, A*36, A*68, A*69, A*74, A*24:03, A*24:207:02, A*24:387

Кроме A*02:16, A*02:19, A*02:77, A*02:131 A*02:376, A*29:03, A*32:26:02, A*32:101Q

D4 - A*01, A*02, A*03, A*11, A*23, A*24, A*30, A*31, A*32, A*36, A*74, A*80

H4 - A*25, A*26, A*33, A*66, A*68, A*69

Сканирование и анализ



Сканирование и анализ

Master-Microchip - A1130.tif

File Edit Tools Help

Open Save Print Array HLA-A Analyze

Original image Processed image

Mask
 Bounds of spots
 Selected cells

Signal intensities

- A*03
- A*25, A*32 except A*32:03
- A*23
- A*24
- A*29
- ▶ A*30, A*01:02, A*01:20, A*01:190
- A*02
- A*80
- A*36, A*03:260, A*01, except A*01:69:01
- A*43, A*29, A*68:130:02
- A*01, A*26, A*34, A*43, A*80, A*03:57, A*24:302, A*30:90 except 01:229, 26:03:01
- A*11
- A*30
- A*32, A*74, A*02:65
- A*33, except 33:03, 33:123N
- A*31, A*33
- A*69, A*02, except 02:02, 02:05, 02:08, 02:14, 02:65, 02:131, 02:376, 02:646, 02:651, 02:652
- A*66, A*25, A*26, A*34
- A*68, A*02:651
- A*34
- A*02, A*03, A*29, A*30, A*31, A*32, A*33, A*34, A*36, A*68, A*69, A*74, A*24:03, A*24:2 except A*02:16, A*02:19, A*02:77, A*02:121, A*02:276, A*29:02, A*22:26:02, A*22:101:0
- A*01, A*02, A*03, A*11, A*23, A*24, A*30, A*31, A*32, A*36, A*74, A*80

Result

Groups	Cells
A*30, 01:02, 01:20, 01:190	A6, E6
A*11	B6, F6
A*30	C1, G1
A*02, A*03, A*29, A*30, A*31, A*32, A*33	D3, H3



Спасибо за внимание

