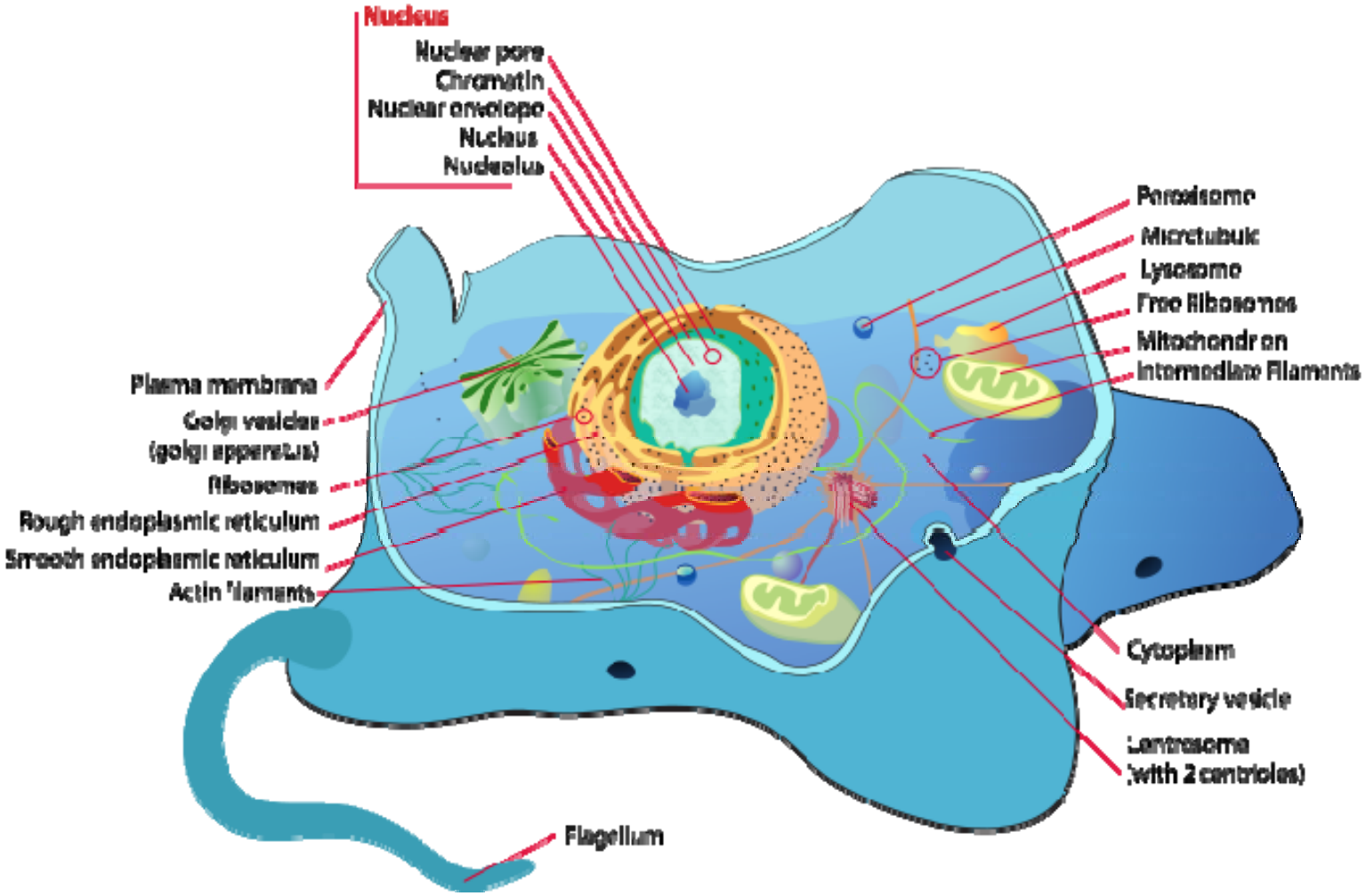
The value of Male- and Female-lines

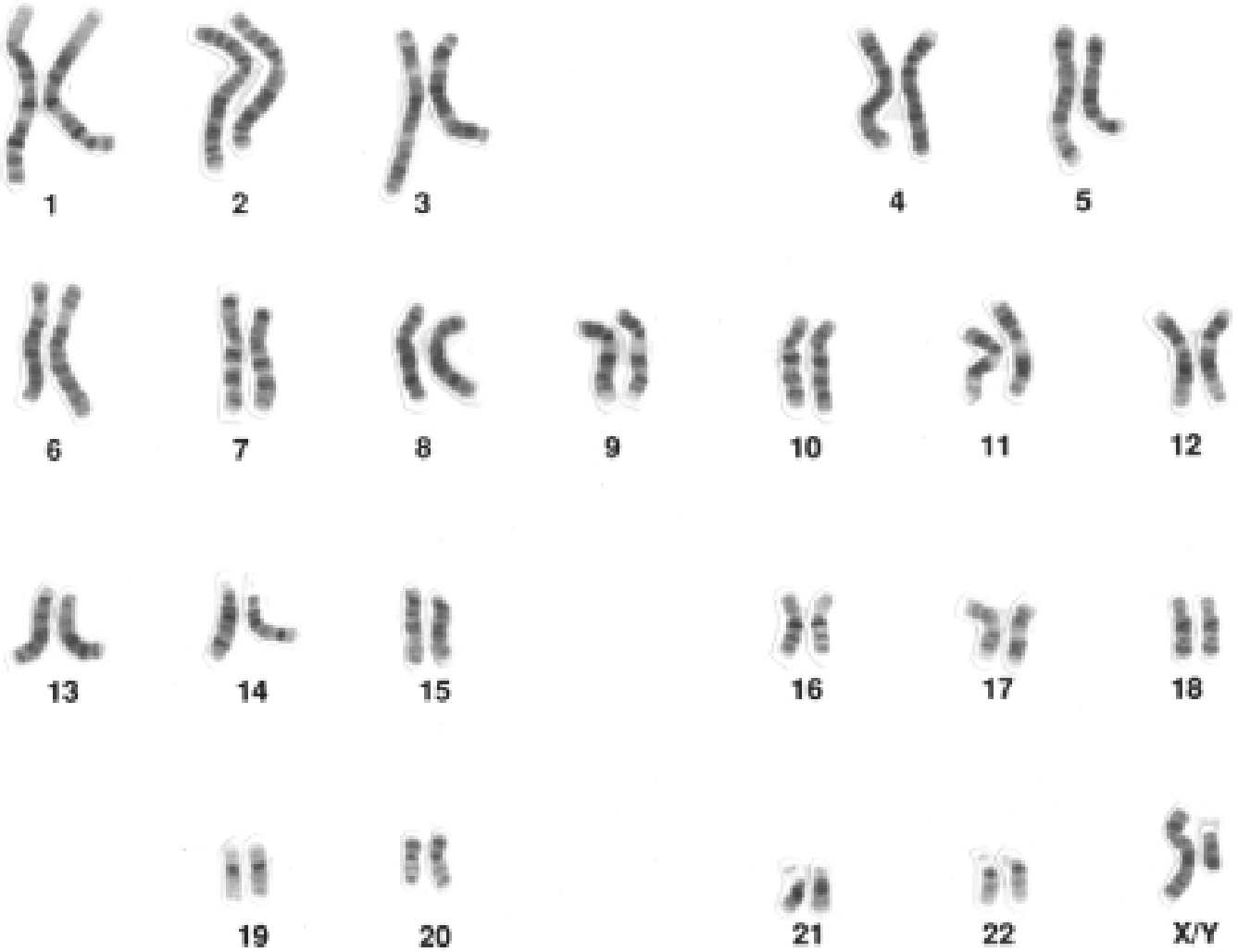
Male-line (red) and Female-line (blue)				
Sire	**Sire**	**Sire**	**Sire**	**Sire**
				Dam
			Dam	Sire
				Dam
		Dam	Sire	Sire
				Dam
			Dam	Sire
				Dam
	Dam	Sire	Sire	Sire
				Dam
			Dam	Sire
				Dam
		Dam	Sire	Sire
				Dam
			Dam	Sire
				Dam
Dam	Sire	Sire	Sire	Sire
				Dam
			Dam	Sire
				Dam
		Dam	Sire	Sire
				Dam
			Dam	Sire
				Dam
	Dam	Sire	Sire	Sire
				Dam
			Dam	Sire
				Dam
		Dam	Sire	Sire
				Dam
			Dam	Sire
				Dam

Is there DNA present
that is passed unchanged
by the Male- or Female-line?

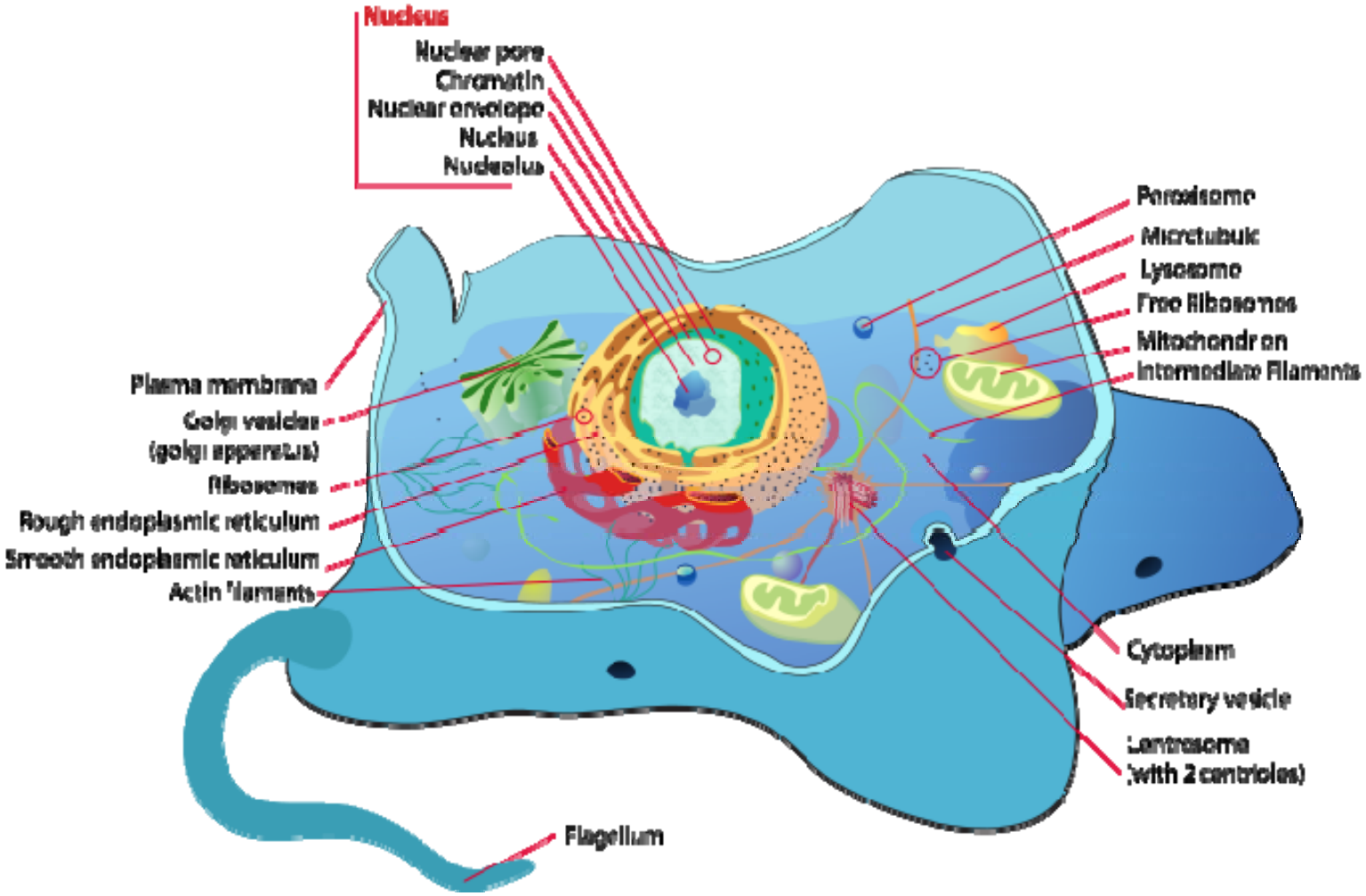
Structure of a typical animal cell



Chromosomes of a man (nucleus)



Structure of a typical animal cell



DNA of a Male cell divided in four types

62 auto-some chromosomes (nucleus)	Mitochondrial DNA (egg)
1 X-chromosome (nucleus)	1 Y-chromosome (nucleus)

DNA of a Female cell divided in four types

62 auto-some chromosomes (nucleus)	Mitochondrial DNA (egg)
2 X-chromosomes (nucleus)	0 Y-chromosomes (nucleus)

Male- and Female-line (pedigree of a Male)

<table>
<tr><td rowspan="16">Sire</td><td rowspan="8">Sire</td><td rowspan="4">Sire</td><td>Sire</td></tr>
<tr><td>auto-some: 6,25%
Y-chromosome: 100%
X-chromosome: 0%
Mt-DNA: 0%</td></tr>
<tr><td rowspan="4">auto-some: 12,5%
Y-chromosome: 100%
X-chromosome: 0%
Mt-DNA: 0%</td><td rowspan="4">Dam</td></tr>
<tr><td rowspan="4">auto-some: 25%
Y-chromosome: 100%
X-chromosome: 0%
Mt-DNA: 0%</td></tr>
<tr><td rowspan="4">Sire</td></tr>
<tr><td rowspan="4">auto-some: 50%
Y-chromosome: 100%
X-chromosome: 0%
Mt-DNA: 0%</td><td rowspan="4">Dam</td></tr>
<tr><td rowspan="4">Sire</td></tr>
<tr><td rowspan="4">auto-some: 50%
X-chromosome: 0%
X-chromosome: 100%
Mt-DNA: 100%</td><td rowspan="4">Dam</td></tr>
<tr><td rowspan="8">Dam</td><td rowspan="4">auto-some: 25%
X-chromosome: 0-25%
X-chromosome: 0-25%
Mt-DNA: 100%</td><td rowspan="4">Sire</td></tr>
<tr><td rowspan="4">Dam</td><td rowspan="4">auto-some: 12,5%
X-chromosome: 0-12,5%
X-chromosome: 0-12,5%
Mt-DNA: 100%</td></tr>
<tr><td rowspan="4">auto-some: 6,25%
X-chromosome: 0-6,25%
X-chromosome: 0-6,25%
Mt-DNA: 100%</td></tr>
<tr><td rowspan="4">Dam</td></tr>
</table>

Male- and Female-line (pedigree of a Female)

Sire	**Sire**	**Sire**	**Sire**
			auto-some: **6,25%**
			Y-chromosome: **0%**
		auto-some: **12,5%**	X-chromosome: **0%**
		Y-chromosome: **0%**	Mt-DNA: **0%**
		X-chromosome: **0%**	
		Mt-DNA: **0%**	
	auto-some: **25%**		
	Y-chromosome: **0%**		
	X-chromosome: **0%**		Dam
	Mt-DNA: **0%**		
auto-some: **50%**			Sire
Y-chromosome: **0%**			
X-chromosome: **50%**			Dam
Mt-DNA: **0%**			
auto-some: **50%**			Sire
X-chromosome: **0%**			
X-chromosome: **50%**			Dam
Mt-DNA: **100%**			
	auto-some: **25%**		Sire
	X-chromosome: **0-12,5%**		
	X-chromosome: **0-12,5%**		
	Mt-DNA: **100%**		
Dam		auto-some: **12,5%**	
		X-chromosome: **0-6,25%**	
	Dam	X-chromosome: **0-6,25%**	auto-some: **6,25%**
		Mt-DNA: **100%**	X-chromosome: **0-3,12%**
			X-chromosome: **0-3,12%**
		Dam	Mt-DNA: **100%**
			Dam

What is the relevance
to measure the value of
the Male- or Female-line?

Darco

15th generation

Lux Z

17th generation

Whalebone xx

100% Y-chromosome of Darley Arabian (Male-line)

3 active Male-lines

1) Byerley Turk (born 1680)	Ramiro Z and Zeus	Cortes C, Okidoki and The Sixt Sense
2) Darley Arabian (born 1700)	Almé Z, Cor de la Bryère, Argentinus, Capitol I, Darco, Grannus, Sandro Z, Landgraf I, Mr. Blue, Nimmerdor and Clover Hill	Cornet d'Amour, Baloubet du Rouet, Cardento, Lux Z, Hickstead, Simon and Shutterfly
3) Godolphin A. (born 1724)	For Pleasure, Kannan, Pilot, Polydor and Fortunus Z	Nino des Buissonnets Opium and Barron

Carthago Z

8th generation

Cöster

8th generation

Nelke

100% Mitochondrial DNA of Holsteiner dam-line 162 (Female-line)

3.000 active Female-lines

Belgium	50	
Hannover	500	
Holstein	500	
Ireland	200	
KWPN	500	
Oldenburg	300	
Selle Français	500	
Sweden	70	
Thoroughbred	30	
Westphalia	350	
Others	?	
Total	3000	Female-lines

Conclusion

- There is no relevance to focus on the Male-line because the 3 remaining lines have all proven they can produce excellent jumpers

- It is important to focus on the Female-line because there are over 3.000 active lines which show a large difference in quality