



**Institut für
PATHOLOGIE**

Gemeinschaftspraxis für Pathologie

mit integrierter
Molekularpathologie

B. Richter, K. Henneicke und K. Richter

Molekularpathologie



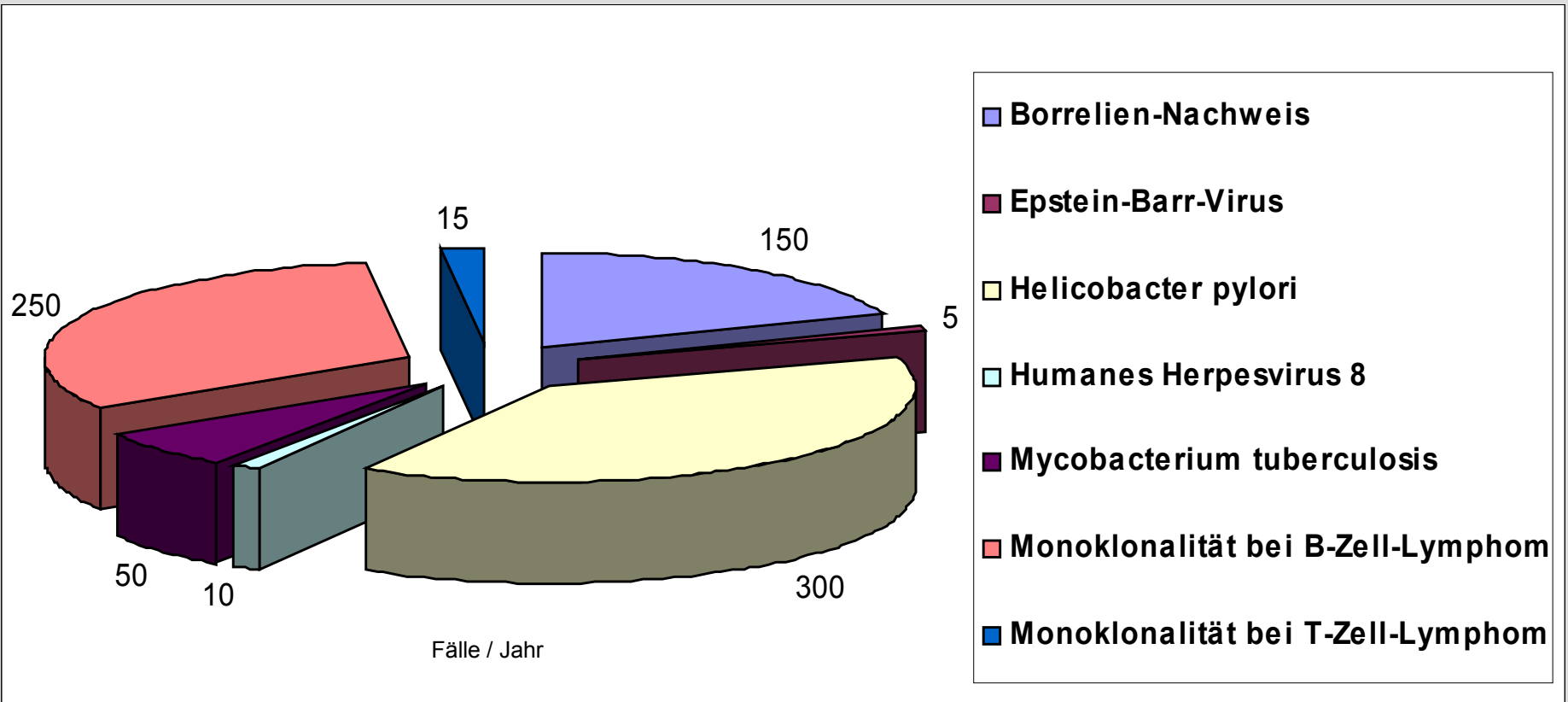
Zeittafel

- 1994 Gründung** des „Molli“-Labors
Nachweis v. Beta-globin, **Nested PCR** f. HPV
- 1995 Hybridisierung** HPV, Nested PCR f. **Monoklonalitätsnachweis**
f. B-Zell-Lymphome
- 1996 Nested PCR f. Chlamydien, Mykobakterien, EBV u. Semಿನested
PCR f. T-Zell-Lymphome
- 1997 Sequenzierung** BRCA1-Gen, **Fragmentanalyse** f. MSI,
Restriktionsanalyse f. Haemochromatose
- 1999 FISH**–Amplifikation f. Her-2/neu
- 2002 FISH f. UroVysion
- 2004 Mutationsspezifische PCR f. GNAS1
- 2005 FISH-Translokationen u. Deletionen bei Leukämien, FISH-
Translokation f. Sarkome (Ewing-, Lipo- u. Synovialsarkom),
Restriktionsanalyse f. HSV I u. II, Nested PCR f. Humanes
Herpes Virus 8
- 2007 Sequenzierung f. Leishmania ssp., Fragmentanalyse f.
Oligodendrogliome
- 2008 Sequenzierung des k-ras Genes

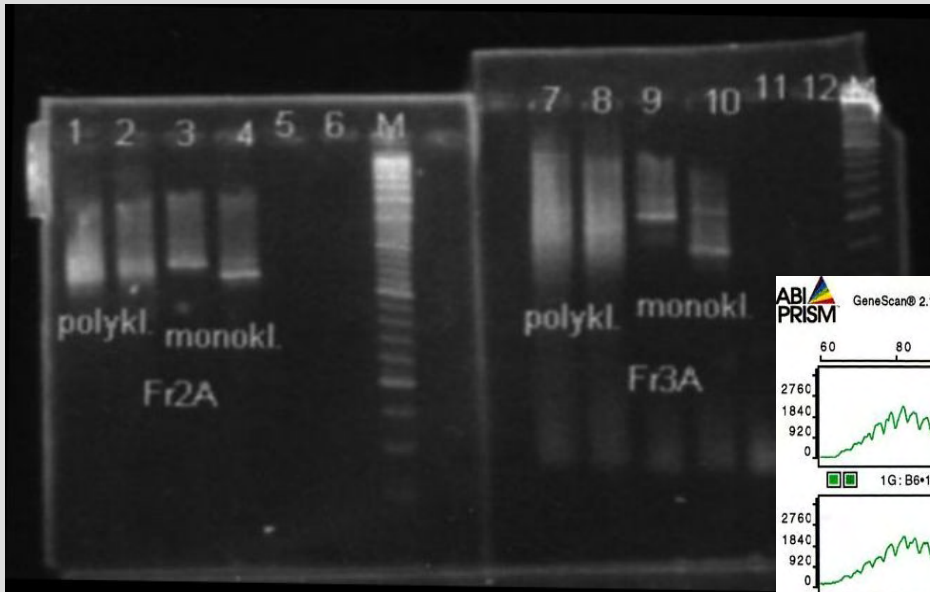
Spektrum der molekularpathologischen Leistungen

1. Polymerase-Ketten-Reaktion (PCR)
 - Nested PCR
 - Hybridisierung
 - Restriktionsanalyse
 - Sequenzierung
 - Fragmentanalyse
 - Mutationsspezifische PCR
2. Fluoreszenz-in-situ-Hybridisierung (FISH)

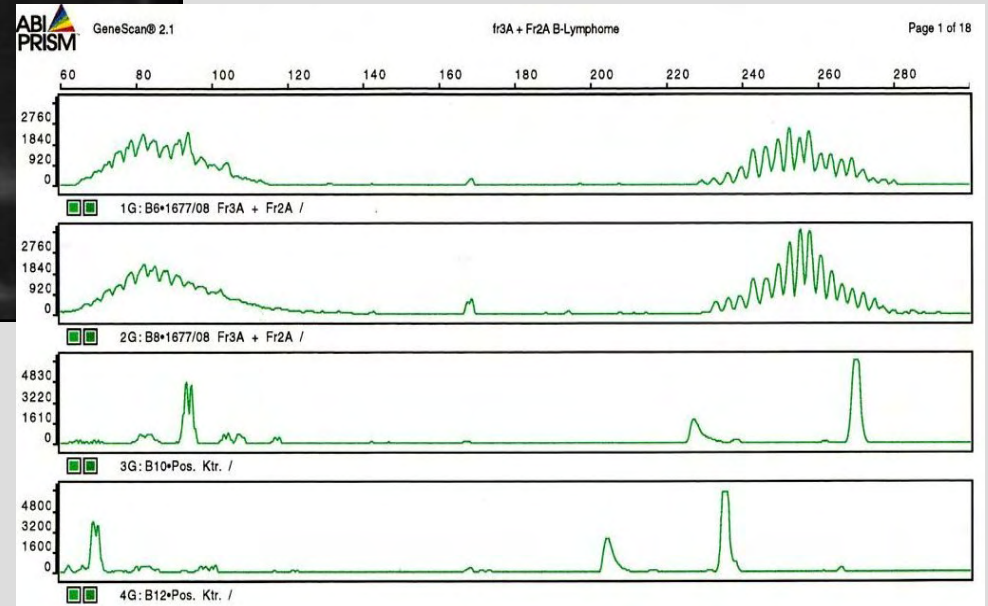
Nested PCR



Monoklonalitätsnachweis B-Zell-Lymphom



Gel-Elektrophorese



Fragmentanalyse

Hybridisierung (1)

Nachweis von low und high risk HPV-Typen (Hybrid Capture II-Test)

HPV-LRHR-NoRTZ-Q Dual Assay HPV-LR-NoRTZ-Q and HPV-				Criteria			
				Presence or absence			
				Primary		Secondary	
Operator:	Super	Kit Lot #	Valid Run	Validated By	Positive CO	Negative CO	Negative CO
HPV-LR-NoRTZ-Q	11535	True	Digene	492.00	492.00	492.00	0.05
HPV-HR-NoRTZ-Q	11535	True	Digene	185.33	185.33	185.33	0.02

Sample / Specimen ID	Summary	HPV-LR-NoRTZ-Q Mean			HPV-HR-NoRTZ-Q Mean		
		RLU	RLU/CO	%CV	RLU	RLU/CO	%CV
35564-06	--	100	0.20		146	0.78	
35566-06	--	106	0.21		148	0.79	
35898-06	--	92	0.18		124	0.66	
35900-06	--	92	0.18		118	0.63	
35954-06	Positive HPV-HR-NoRTZ-Q	130	0.26		188	1.01	
35955-06	--	104	0.21		136	0.73	
36127-06	Positive HPV-HR-NoRTZ-Q	86	0.17		2052	11.07	

Sample / Specimen ID	Summary	HPV-LR-NoRTZ-Q Mean			HPV-HR-NoRTZ-Q Mean		
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35955-06	--	104	0.21		136	0.73	
36127-06	Positive HPV-HR-NoRTZ-Q	86	0.17		2052	11.07	

37947-06	--	128	0.26		142	0.76	
37962-06	Positive HPV-LR-NoRTZ-Q	1,452	2.95		168	0.90	
37963-06	LR/HR	17,074	34.70		53414	288.21	
35976-06	Positive HPV-HR-NoRTZ-Q	156	0.31		1504	8.11	
38263-06	Positive HPV-LR-NoRTZ-Q	2,732	5.55		174	0.93	
37785-06	--	110	0.22		152	0.82	
37787-06	Positive HPV-HR-NoRTZ-Q	122	0.24		204	1.10	
36261-06	--	120	0.24		152	0.82	

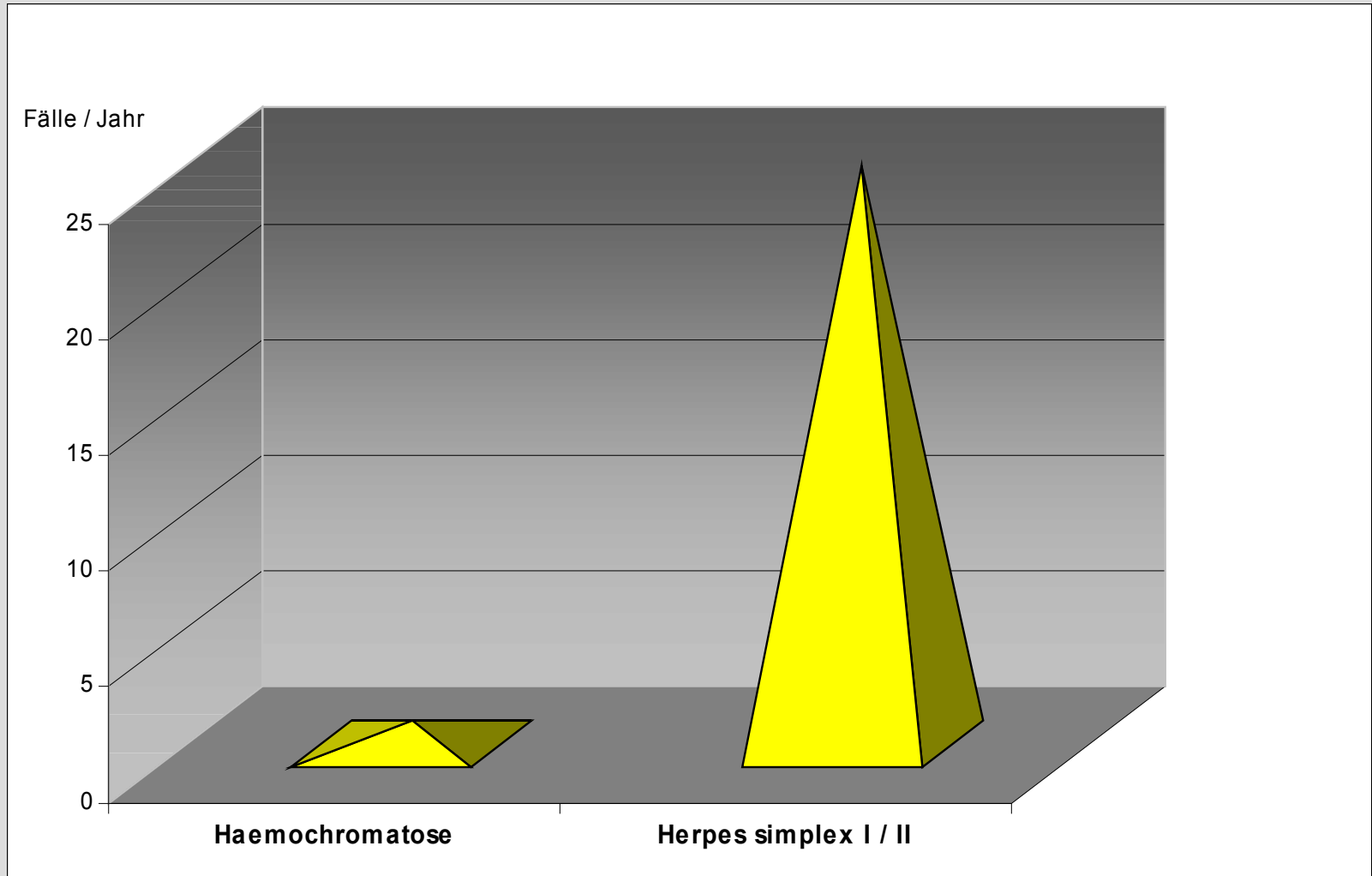
Hybridisierung (2)

Differenzierung verschiedener HPV-Typen (HPV-Type 3.5C)

The screenshot displays the SlideReader software interface (V07.01.01) with the following components:

- Header:** SlideReader V07.01.01, User: default, Date: 14-05-2008, and navigation buttons (List Reports, New, Report, Help, Quit) alongside the chipron logo.
- Form Fields:** Chip-Type (HPV-Type 3.5 C), Chip-Nr (00098), Chip-Lot (026), and Chip-ID (024 Chip 3).
- View Mode:** Radio buttons for Digital and Image (Image is selected).
- Field Selector:** Buttons for 1-4 (all selected) and 5-8 (none selected).
- Color Code:** Sliders for Default values: 45000 (red), 20000 (blue), and 2000 (green).
- Field Results:** Four panels labeled Field 1 to Field 4, each showing a microarray image and associated data:
 - Field 1 (C3376/08):** Image shows a mostly blank chip. Data: 1 Empty, 0.
 - Field 2 (C3440/08):** Image shows a mostly blank chip. Data: 1 Empty, 0.
 - Field 3 (C3514/08):** Image shows a chip with two spots. Data: 1 Type 33 (32409), 2 Empty (0).
 - Field 4 (10026/08):** Image shows a chip with two spots. Data: 1 Type 16 (34177), 2 Empty (0).

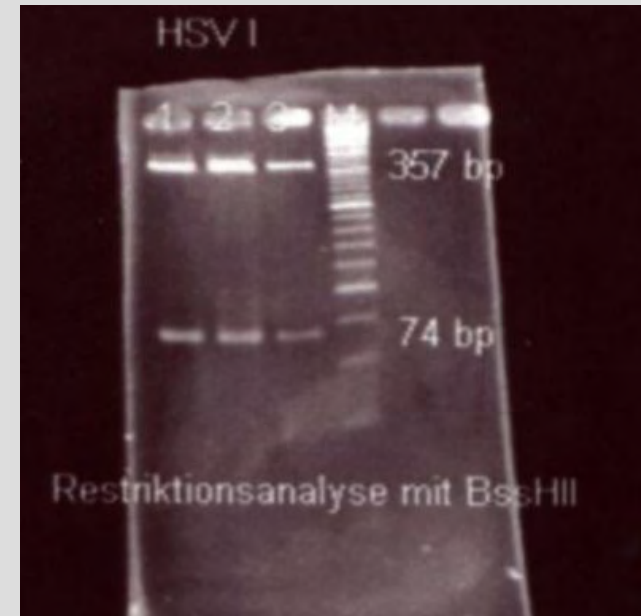
Restriktionsanalyse



Nachweis von Herpes simplex I/II

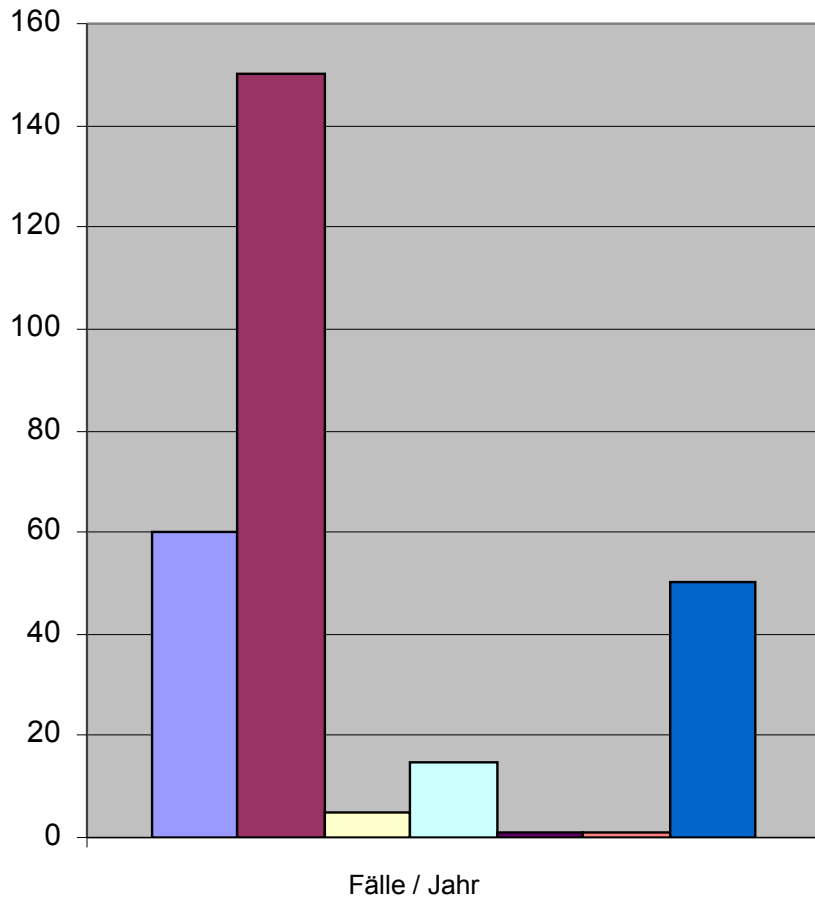


Gel-Elektrophorese



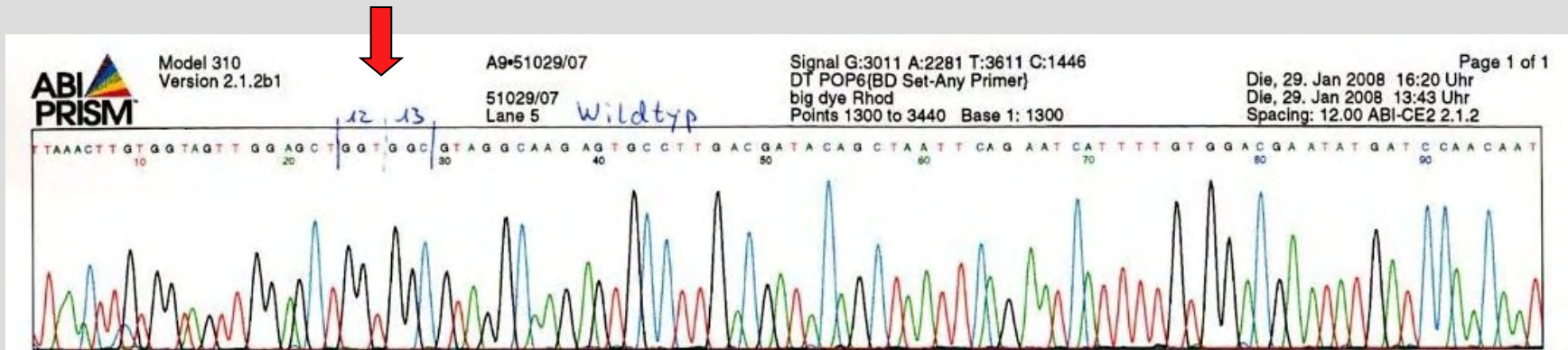
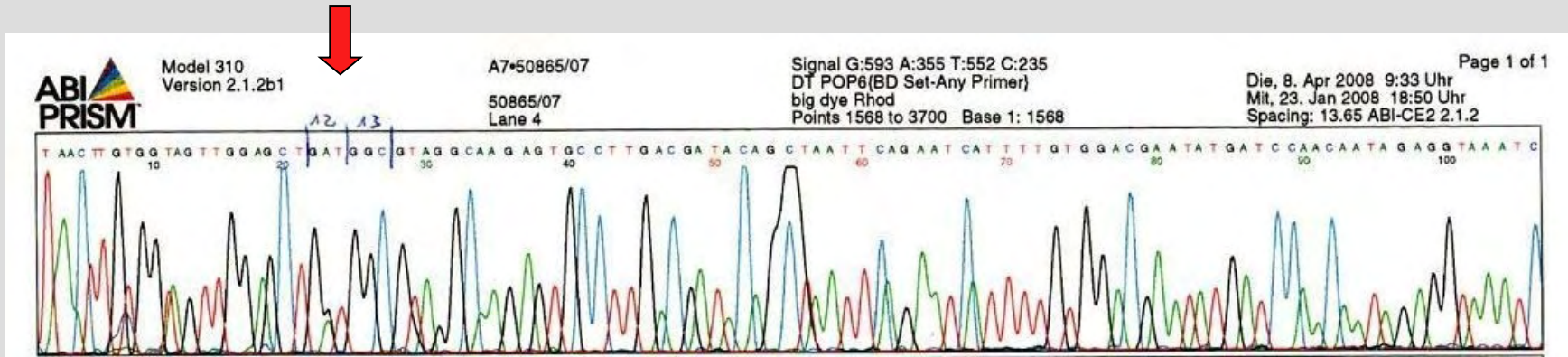
Gel-Elektrophorese

Sequenzierung



- Differenzierung von Mykobakterien
- Differenzierung von HPV-Typen
- Yersinia enterocolitica
- Chlamydia trachomatis
- Toxoplasma gondii
- Cytomegalievirus
- Nachweis von Mutationen am k-ras Gen

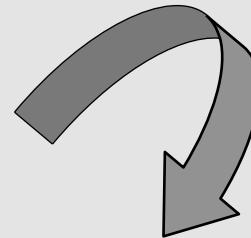
k-ras-Mutation Codon 12/13



Elektropherogramm

Fragmentanalyse

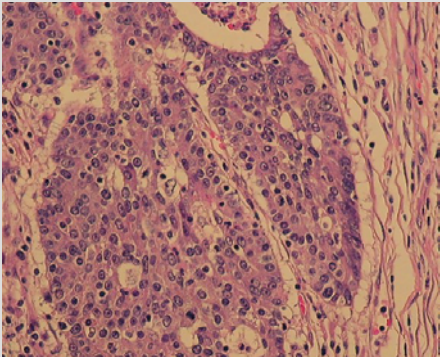
zum Nachweis von Mikrosatelliten-
instabilitäten bei HNPCC



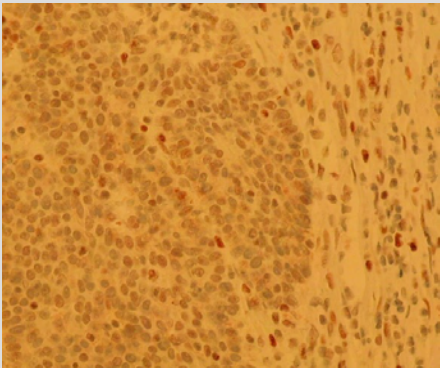
15 Fälle / Jahr

Hinweis auf einen Defekt der Gene
für die Reparaturenzyme MLH1,
MSH2, MSH6...

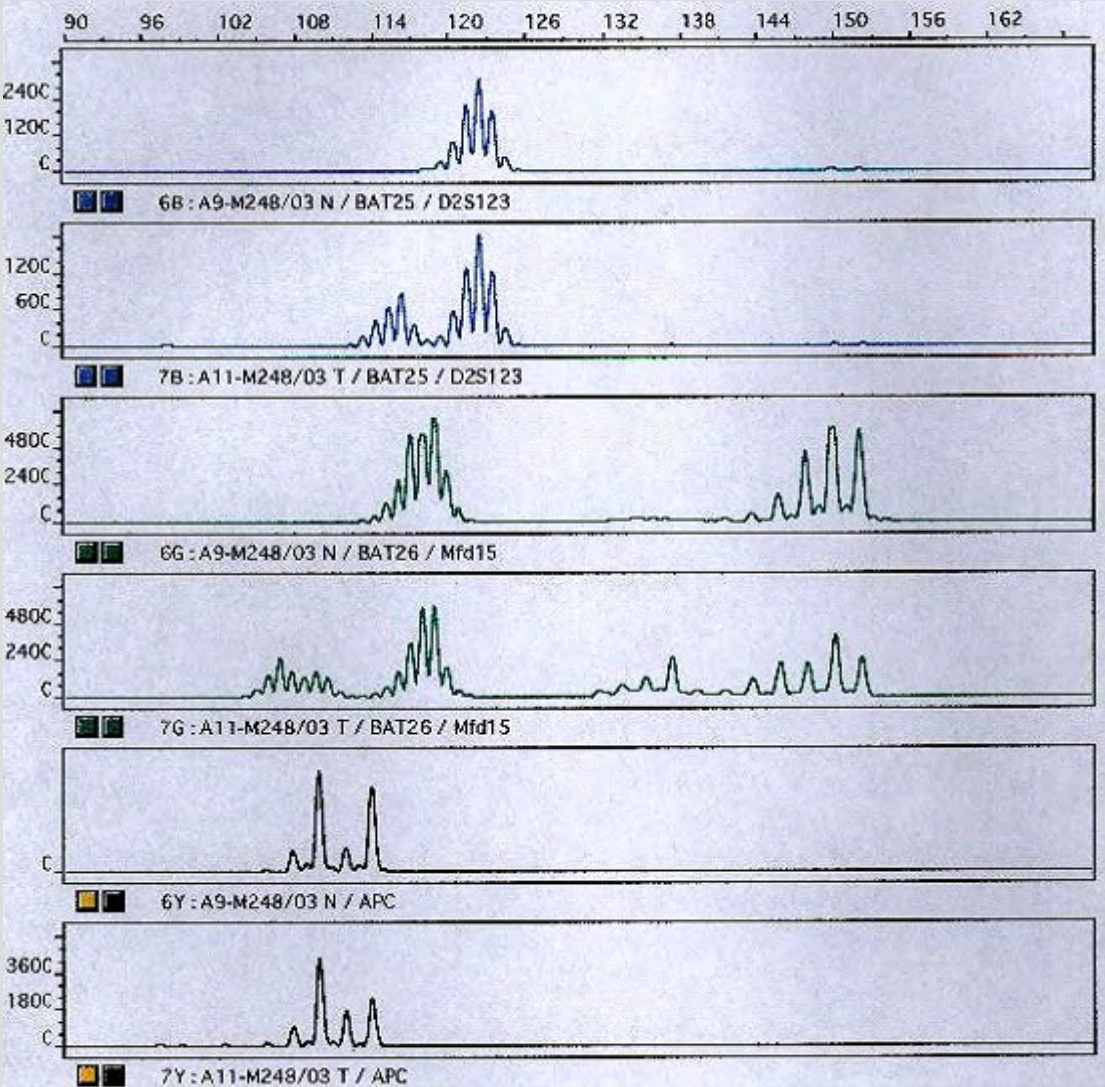
MSI-Nachweis



HE



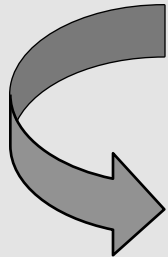
MSH 2



Fragmentanalyse

Mutationsspezifische PCR

GNAS1 (Guanine-nucleotide binding protein)



1 Fall / Jahr

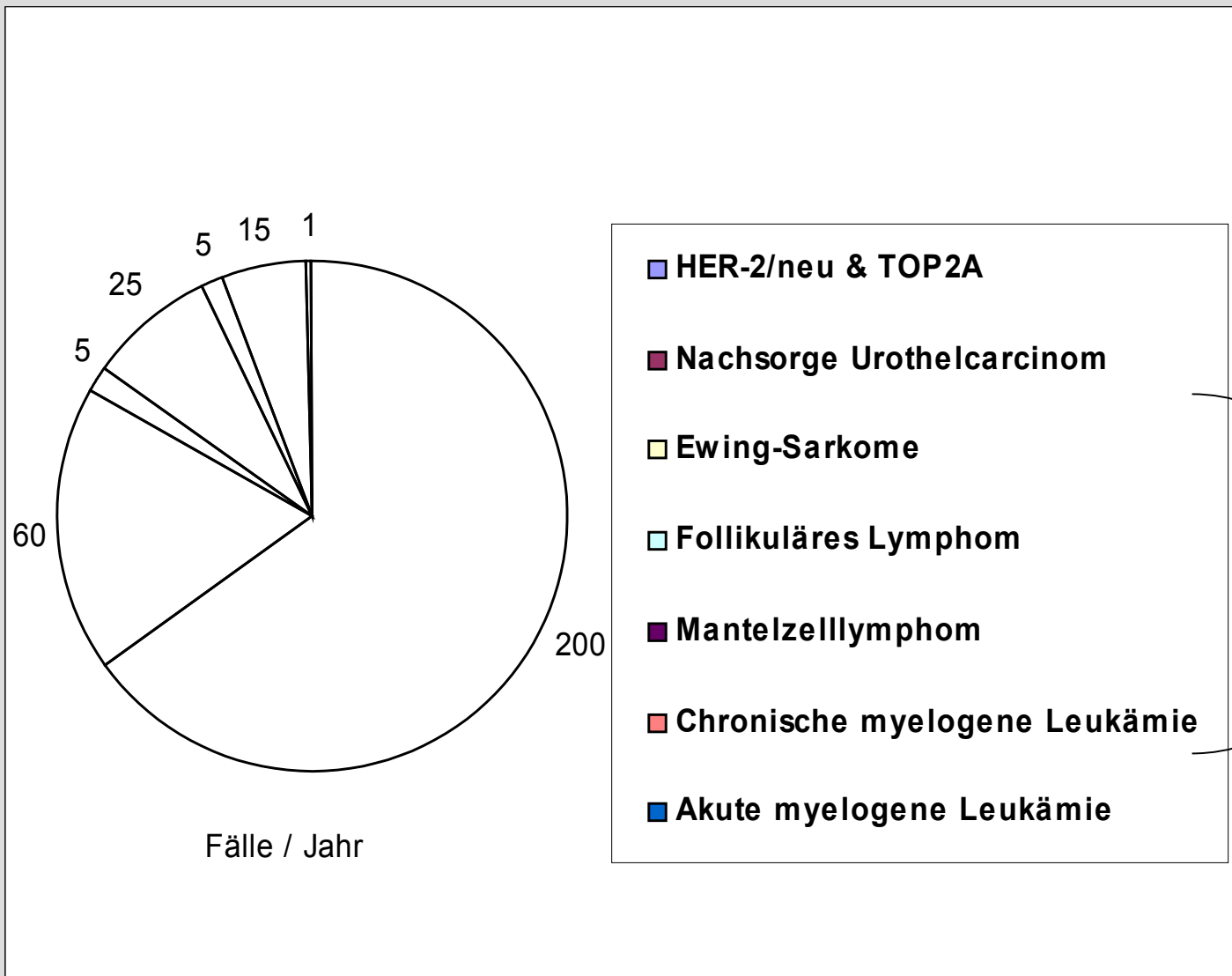
Nachweis von Wildtyp und Mutationen
am Codon 201 am GNAS1-Gen
bei mono- oder polyostotischer
fibröser Dysplasie

GNAS1-Mutationsnachweis

Disorder	Exon	Nucleotide Change	Amino Acid Substitution
McCune-Albright syndrome	8	C → T	Arg201Cys
	8	G → A	Arg201His
Polyostotic fibrous dysplasia	8	C → T	Arg201Cys
Monostotic fibrous dysplasia	8	C → T	Arg201Cys
	8	G → A	Arg201His
Panostotic fibrous dysplasia	8	C → A	Arg201Ser
Solitary pituitary adenoma	8	C → T	Arg201Cys
	8	G → A	Arg201His
	8	C → A	Arg201Ser
	9	A → G	Gln227Arg
	9	G → T	Gln227His

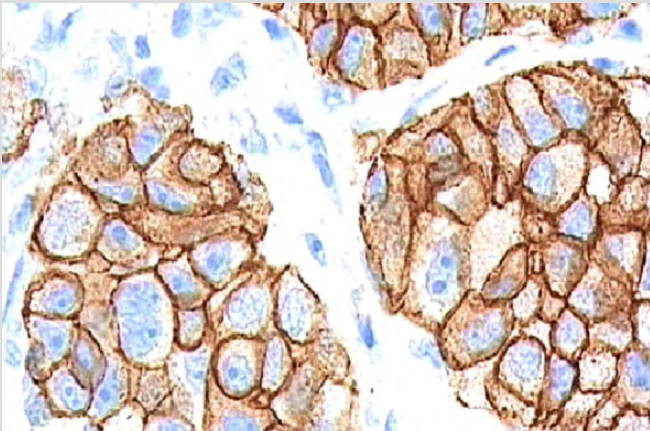
From Cohen and Howell {383}

Fluoreszenz-in-situ-Hybridisierung (FISH)

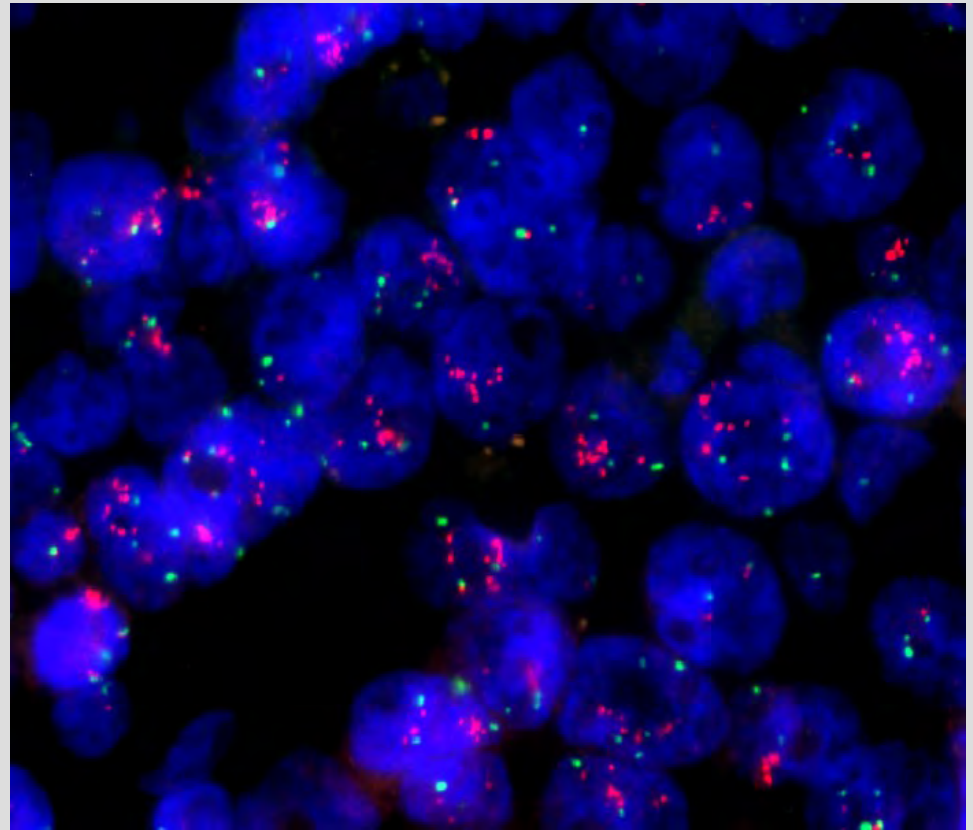


Nachweis von Translokationen

HER-2- und Centromer-Erkennung mit der PathVysion HER-2-Sonde



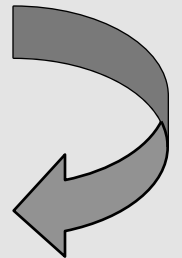
HercepTest (Roche)



FISH

Spektrum der molekularpathologischen Leistungen

	Fälle / Jahr
• Nested PCR	780
• Hybridisierung	2000
• Restriktionsanalyse	26
• Sequenzierung	282
• Fragmentanalyse	15
• Mutationsspezifische PCR	1
• Fluoreszenz-in-situ-Hybridisierung (FISH)	<u>311</u>
	3415



\$ Zusammensetzung des Umsatzes

- ✓ Kassenärztlicher Sektor
- ✓ Privatärztlicher Sektor
- ✓ Stationärer Sektor
- ✓ IGEL-Leistungen

(IGEL machen ca. 55% der molekularpathologischen Leistungen aus, zumeist bedingt durch HPV-Nachweise)

Unser Dank gilt allen engagierten Mitarbeiterinnen und Mitarbeitern



Frau Heise



Frau Gelman



Frau Dr.med.vet. Henneicke



Frau Dr.med.vet. Henneicke



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