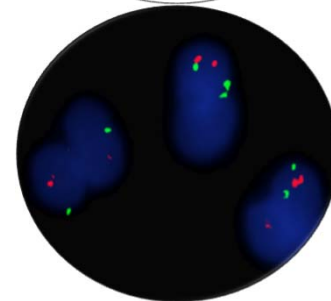
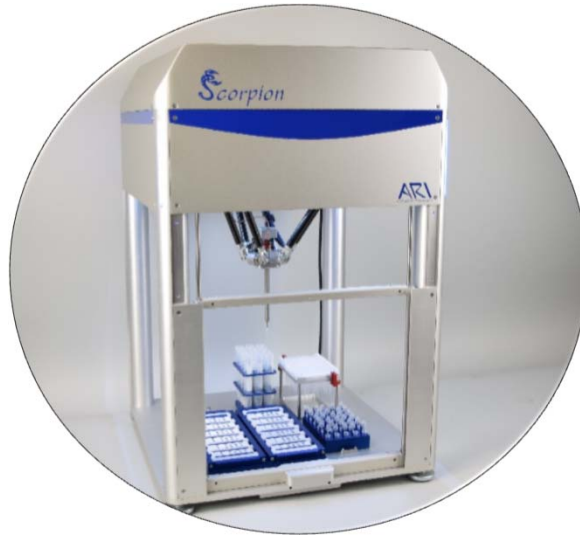


Automated Preparation of Chromosome and FISH Slides



Presenter



Jim Stanchfield, Ph.D.
SciGene Founder and CEO
Sunnyvale, CA

About SciGene

- Founded in 2004 to develop solutions for relieving pain points in cytogenetic workflows
- Provides innovative FISH workflow equipment and associated reagents

We supply everything for FISH
except probes and microscopes!

Most Labs Lose Money Running FISH



2018 reimbursement: **\$51** per hybridization
(CPT 88275 Interphase FISH 100-300 cells)

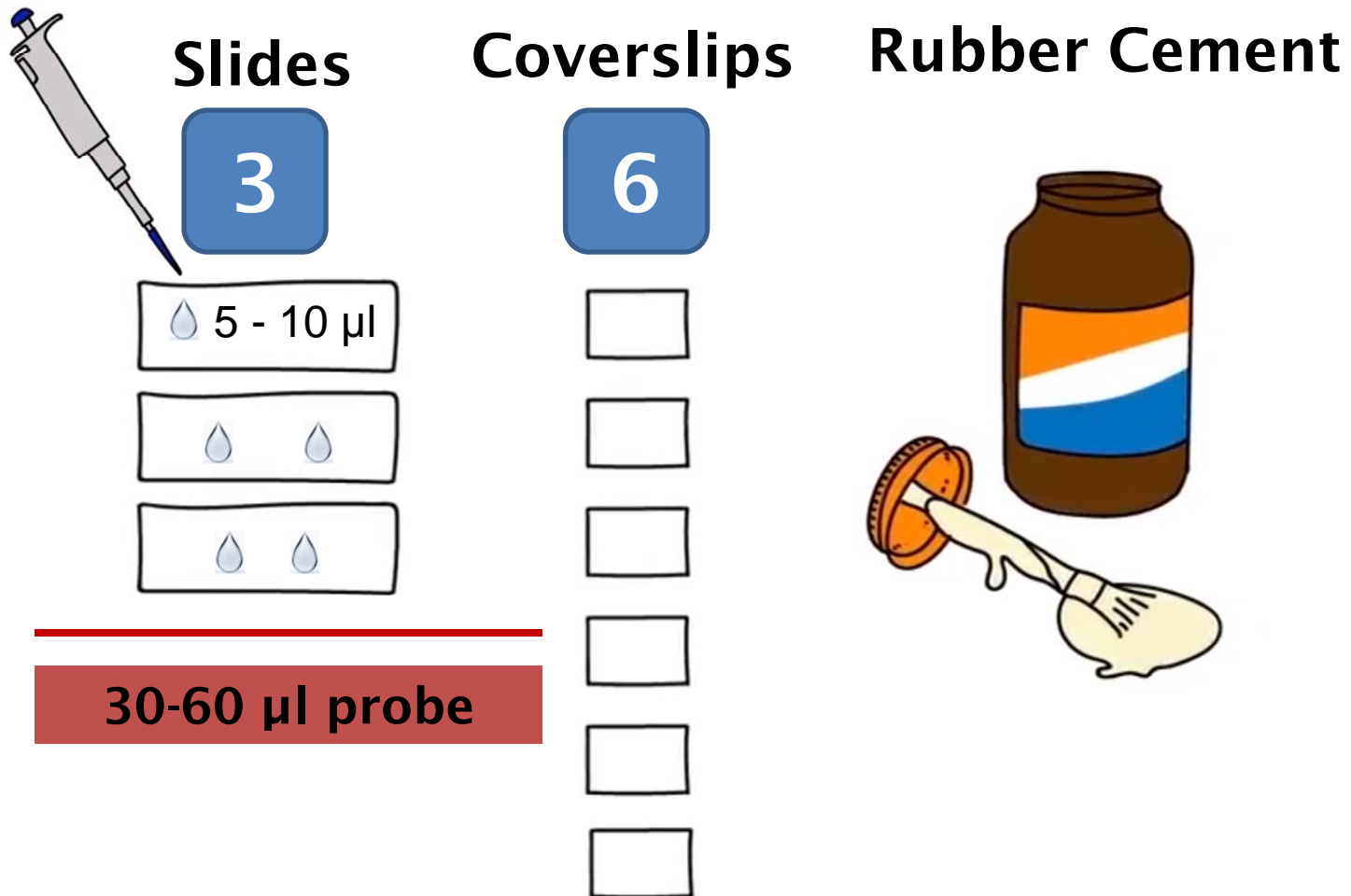
Setting up FISH Panels is a Lot of Work



- Difficult to finish daily workload
- Requires multiple slides and coverslips per patient
- Tedious to seal coverslips with rubber cement

Typical FISH Method

Six Probe Panel Uses \$150 – 300 of Probe



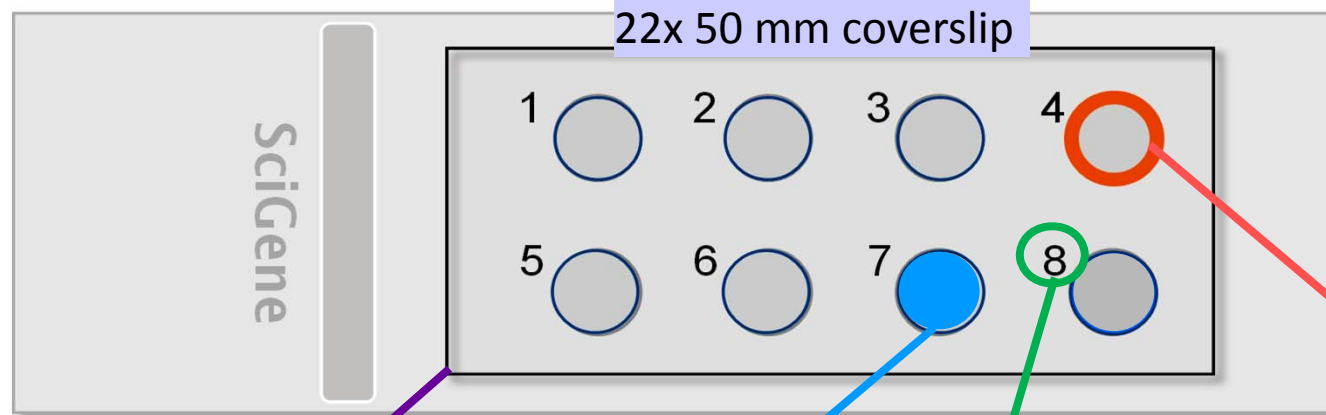
MICROFISH[®] ASSAY SYSTEM

MicroFISH Assay System

A simple system for performing cellular FISH panels that uses a single slide per patient and 1 μ l cell sample and 1 μ l probe solution per well.

MicroFISH Assay Slide

Single Patient Slide for up to 8 Probes



1 coverslip — No sealant.

1 μ l wells conserve samples.

Wells numbered individually.

Coating retains samples in wells.

Simple Workflow

1

MANUAL PREP
Drop Cells



Add Probes



Place Coverslips

2

DENATURE
CytoBrite® PLUS System



3

INCUBATE
MicroFISH® Hyb Oven



4

AUTOMATED WASH
Little Dipper® for FISH



New CAP Regulation for Cytogenetics

ISH Slide Processing System Temperature Checks

Cytogenetics Checklist | 08.17.2016

****NEW** CAP REGULATION**

CYG.33950 ISH Slide Processing System Temperature Checks

Phase II

Individual slide slots (or a representative sample thereof) of *in situ* hybridization (ISH) temperature controlled slide processing systems are checked for temperature accuracy before being placed in service and at least annually thereafter.

Evidence of compliance:

- √ Written procedure for verification of temperature accuracy **AND**
- √ Records of equipment verification



CytoBrite® PLUS Slide Incubation System

Monitors Temperature of Every Slide Position

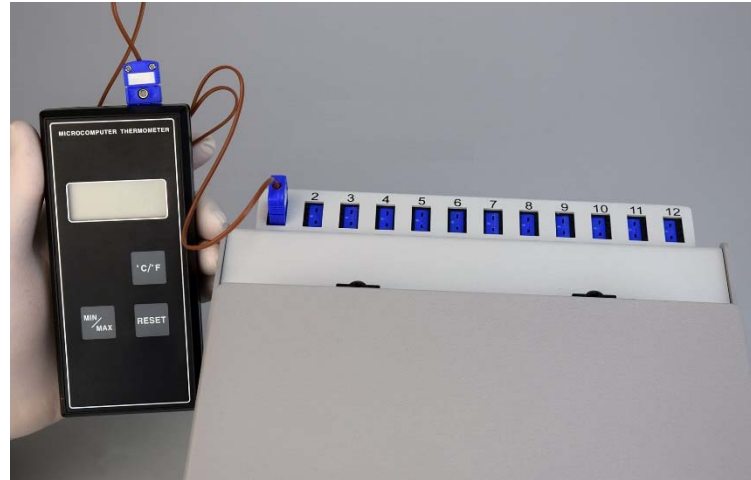
****NEW****



- Meets new CAP Regulation CYG.33950
- PCR Technology rapidly heats/cools slides
- Run data collected on USB key for record keeping
- Slide trays streamline handling

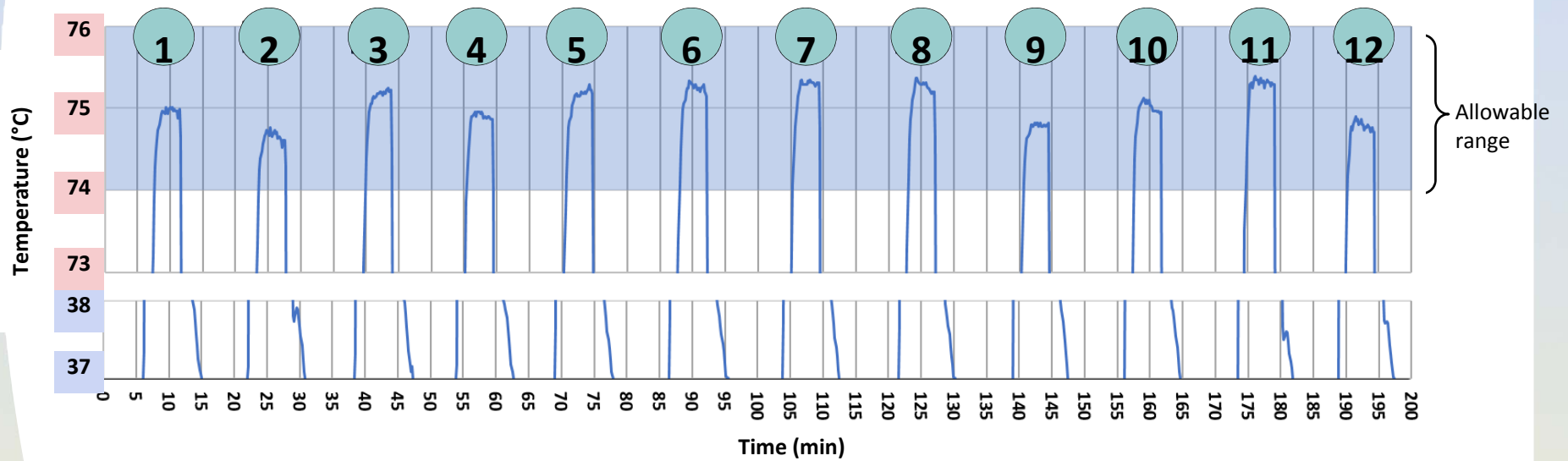
CytoBrite *PLUS* Slide Incubation System

Slide Temperature Verification



- Each slide position equipped with temperature sensor wired to a jack
- Connect the provided thermometer to view each slide position temperature

CytoBrite *PLUS* Slide Temperature Uniformity



MicroFISH Hybridization Oven

Controls Temperature and Humidity

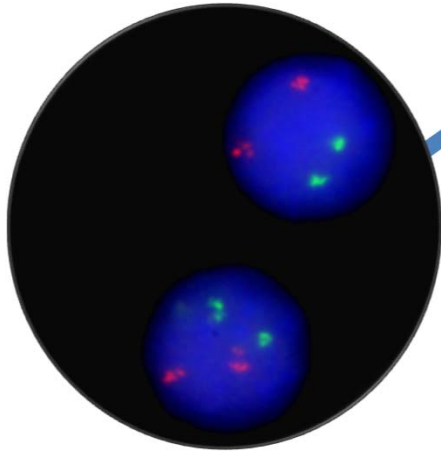


- For incubating MicroFISH® slides
- Boosts probe signals
- Holds up to **162** MicroFISH slides
- Slide trays transferred directly from CytoBrite System

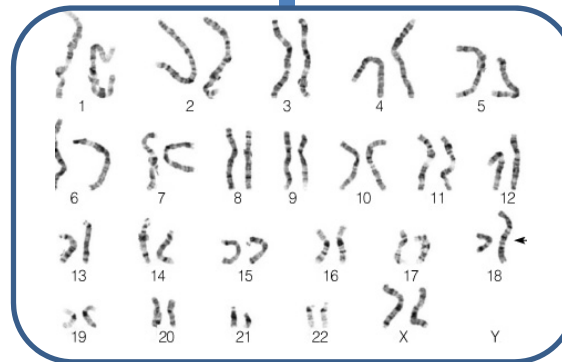
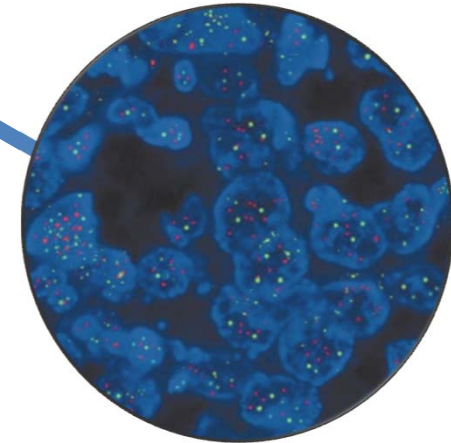
Little Dipper[®] Processor

Multipurpose Cytogenetic Slide Processor

Post-hyb
Processing



Tissue
Pretreatment



G Banding

Little Dipper Processor

Automates MicroFISH Coverslip Removal + Washing



**Coverslips shaken off
and slides washed**



**Slides centrifuged dry
and removed**

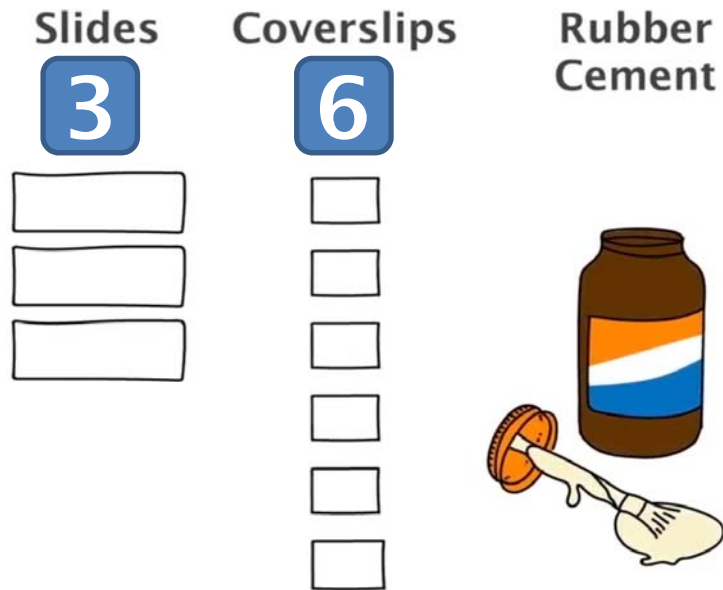


**Coverslips retrieved
from basket**

MicroFISH System

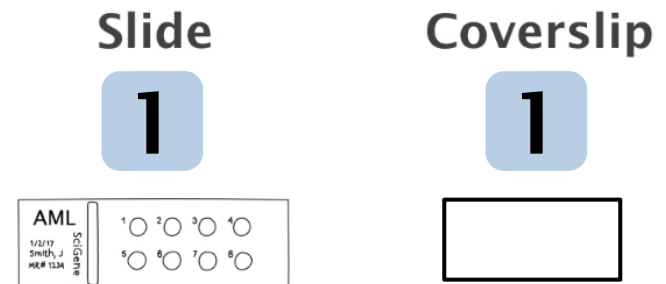
Reduces Probe Cost Per Test up to 90%

Typical Method



Probe cost: \$150 - 300

MicroFISH Method



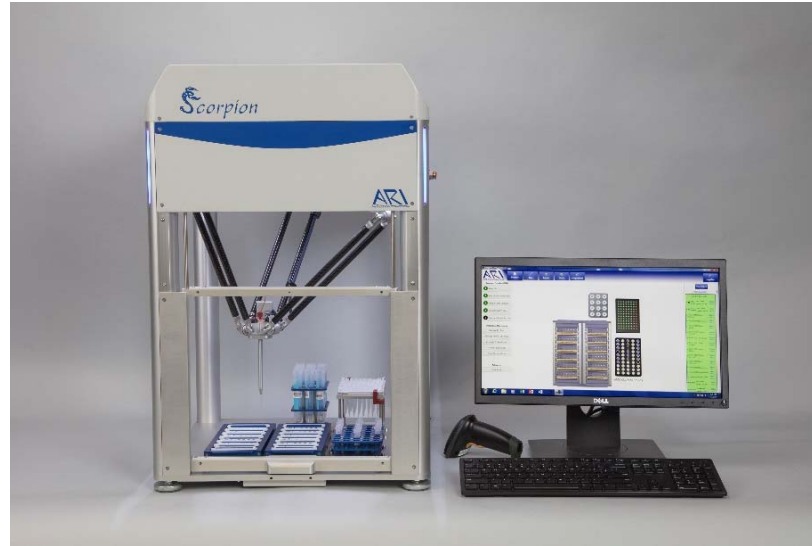
Probe cost: \$30

SCORPION™ SLIDE PREPARATION ROBOT



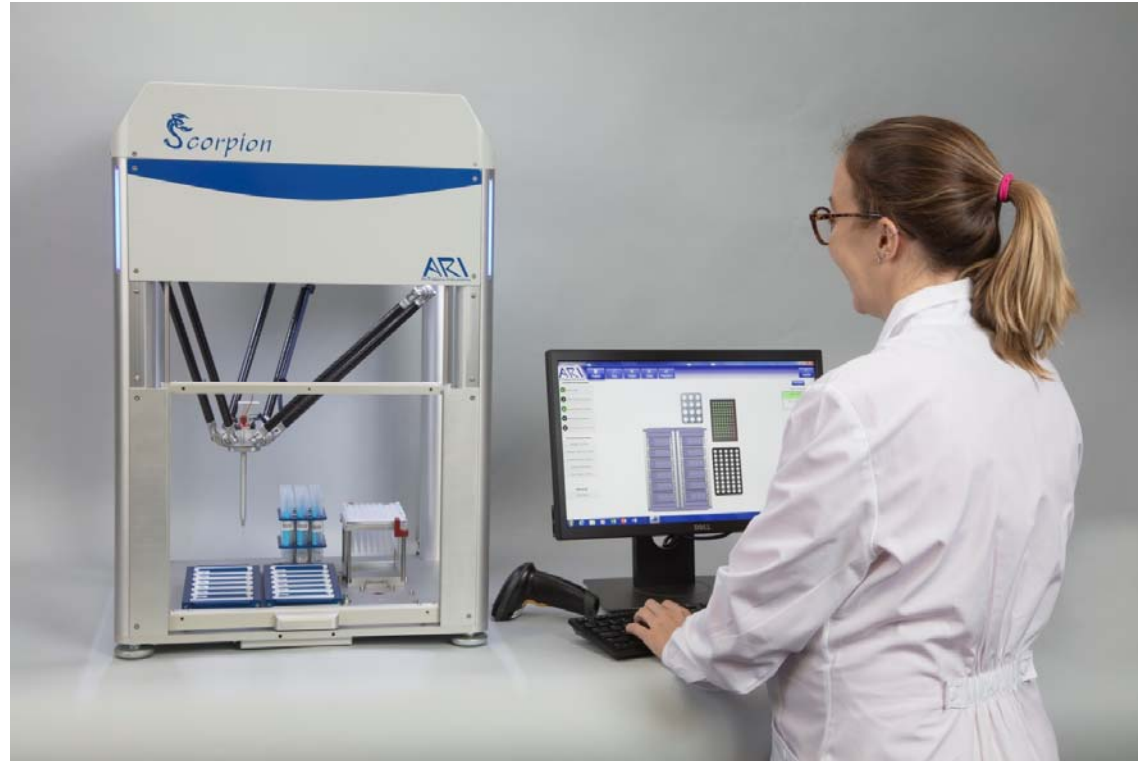
Scorpion Robot

Automates Chromosome and MicroFISH Slide Prep



- Smaller than a lab incubator
- Fast – Makes 12 chromosome slides in < 10 minutes
- Fast – Makes 12 MicroFISH slides in < 30 minutes
- Controlled humidity for optimal metaphase spreading
- Produces detailed patient reports
- Tracks probe inventory

Scorpion Robot VIDEO



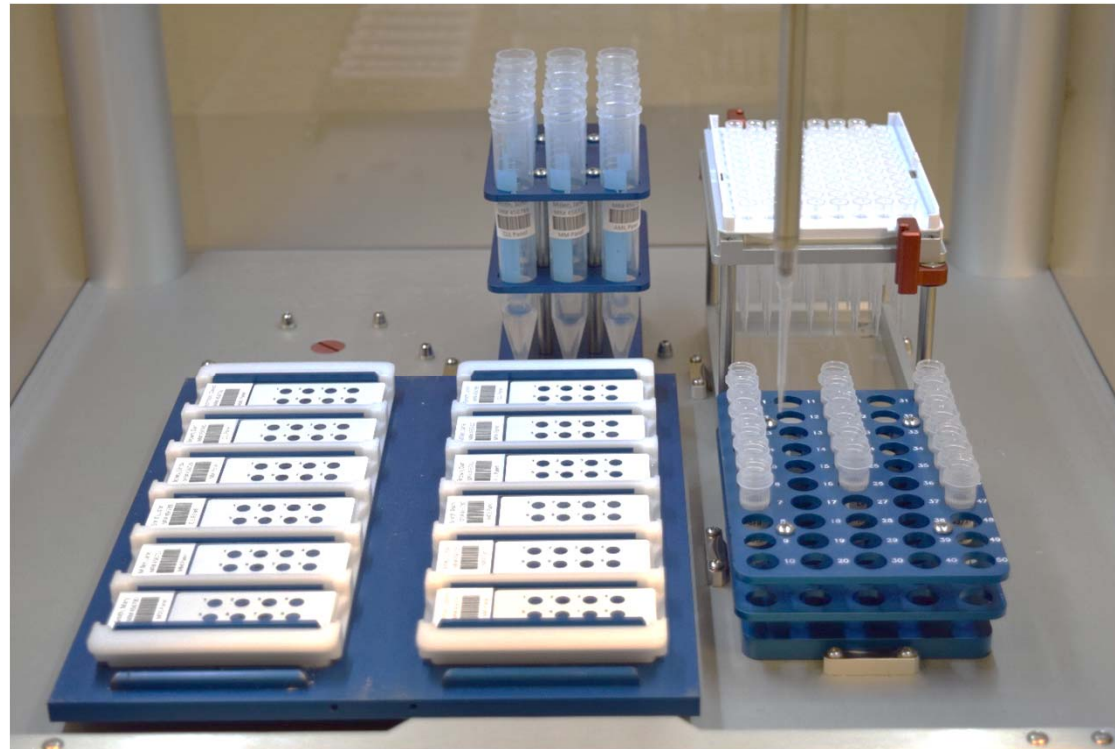
Find link on SciGene home page

Scorpion Robot for MicroFISH Slides

Deck Set Up

12 patient sample tubes
with fixed cells ↓

12 MicroFISH
slides in two
slide trays →



← Pipet tips

← Probe tubes

Scorpion Robot for MicroFISH Slides

Makes 12 Slides in 25 Minutes

Robotic Steps	Time (min)
1. Upon start, robot dispenses 1 μ l of patient cells into designated wells across 12 slides	3
2. Robot pauses to allow slides to dry.	10
3. Robot dispenses 1 μ l of probe into designated wells across 12 slides	12
Elapsed Time:	25 min

Scorpion Robot for MicroFISH Slides

Saves 2.5 Hours Labor per 12 Patients

Manual Preparation



2.5 hrs

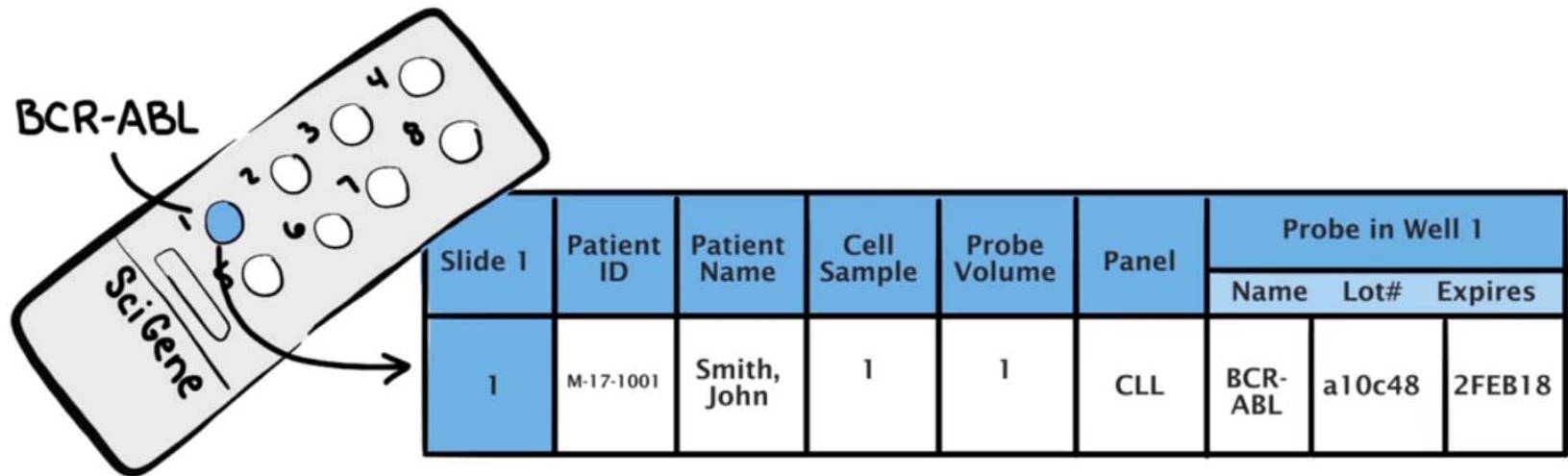
Automated Slide Prep



5 min

Scorpion Robot for MicroFISH Slides

Generates Detailed Patient Reports



The image shows a Scorpion Robot device on the left, which is a handheld instrument used for MicroFISH. It has a screen displaying 'SciGene' and a grid of wells. One well is highlighted in blue and labeled 'BCR-ABL'. An arrow points from this well to a table on the right. The table contains patient report data for a specific well.

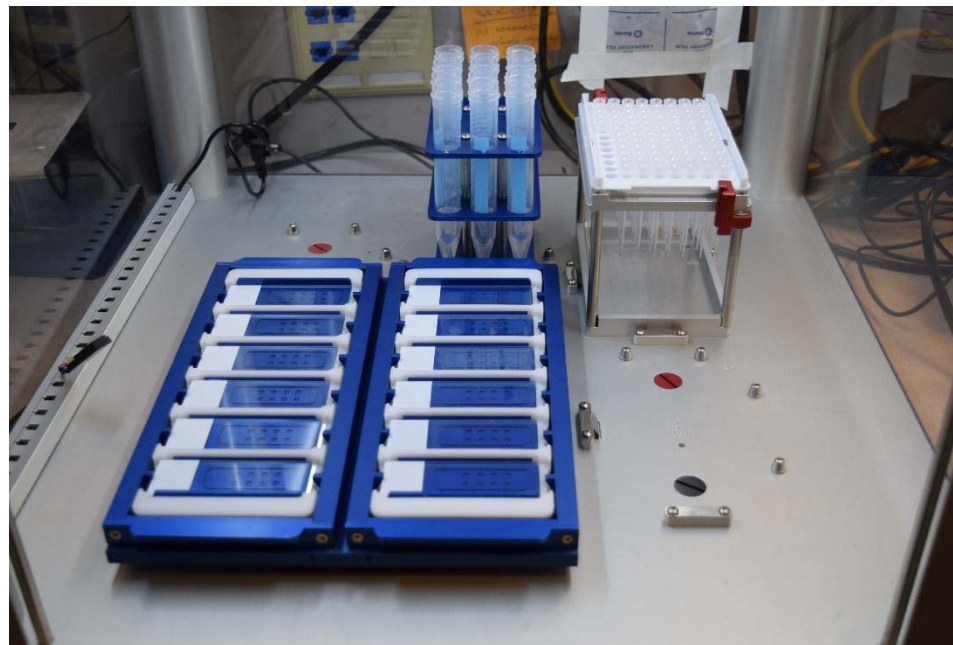
Slide 1	Patient ID	Patient Name	Cell Sample	Probe Volume	Panel	Probe in Well 1		
						Name	Lot#	Expires
1	M-17-1001	Smith, John	1	1	CLL	BCR-ABL	a10c48	2FEB18

- Details every FISH probe hybridization
- Includes probe names/lot numbers / expiration dates

Scorpion Robot for Chromosome Slides Deck Set Up

Patient sample tubes
with fixed cells ↓

12 slides in two
slide trays →



← Pipet tips

Humidity Effects on Chromosome Spreading Using a Cell Dropping Robot



Stanford
MEDICINE

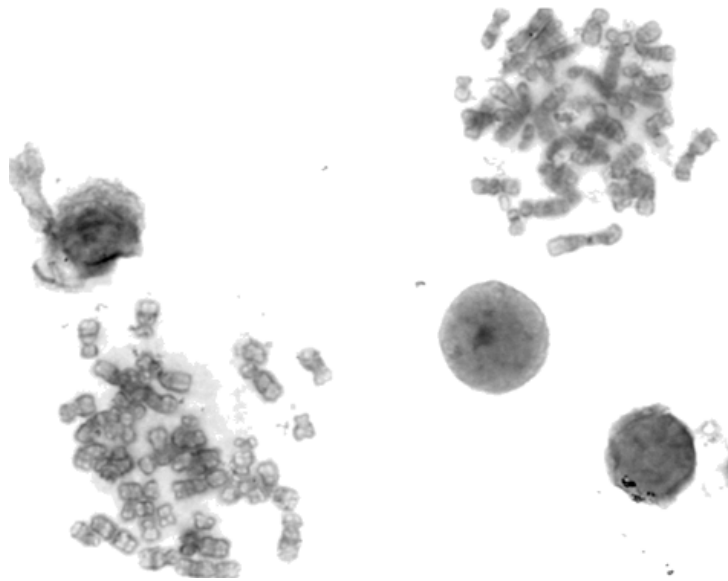
Cytogenetics
In the Department of Pathology

- Chromosome slides prepared at humidity levels between 25-70% RH
- Slides G-banded and 20 metaphases per slide analyzed by a certified cytogeneticist

Automated Preparation of Chromosome Slides

Humidity Effects on Spreading

25% RH



Quality	# Spreads	%
Good	0	0%
Fair	3	15%
Poor	17	85%

40% RH

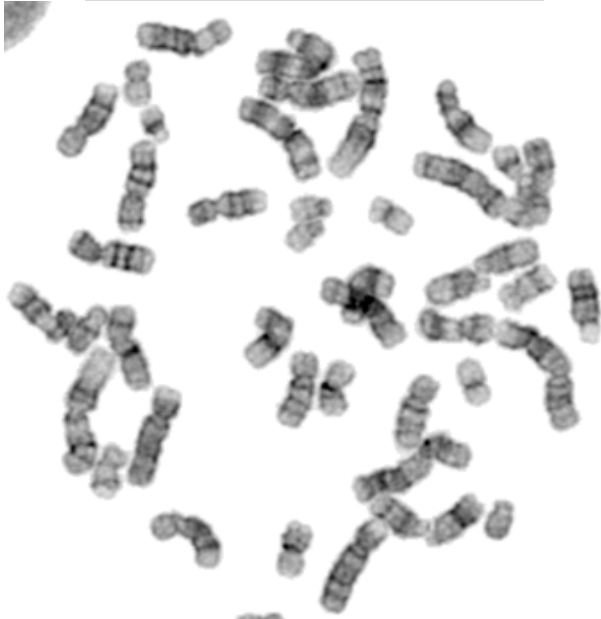


Quality	# Spreads	%
Good	4	20%
Fair	15	75%
Poor	1	5%

Automated Preparation of Chromosome Slides

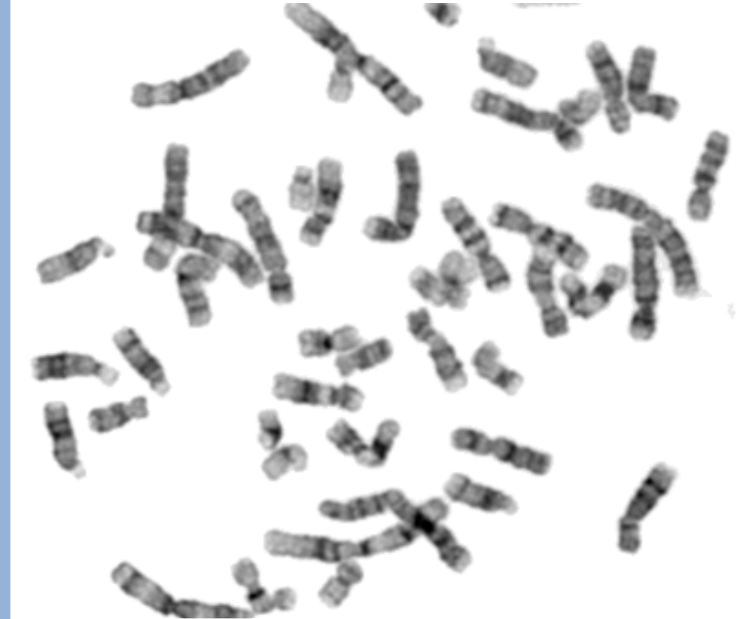
Humidity Effects on Spreading

50% RH



Quality	# Spreads	%
Good	10	50%
Fair	9	45%
Poor	1	5%

55% RH



Quality	# Spreads	%
Good	14	70%
Fair	6	30%
Poor	0	0%

Automated Preparation of Chromosome Slides

Humidity Effects on Spreading

60% RH



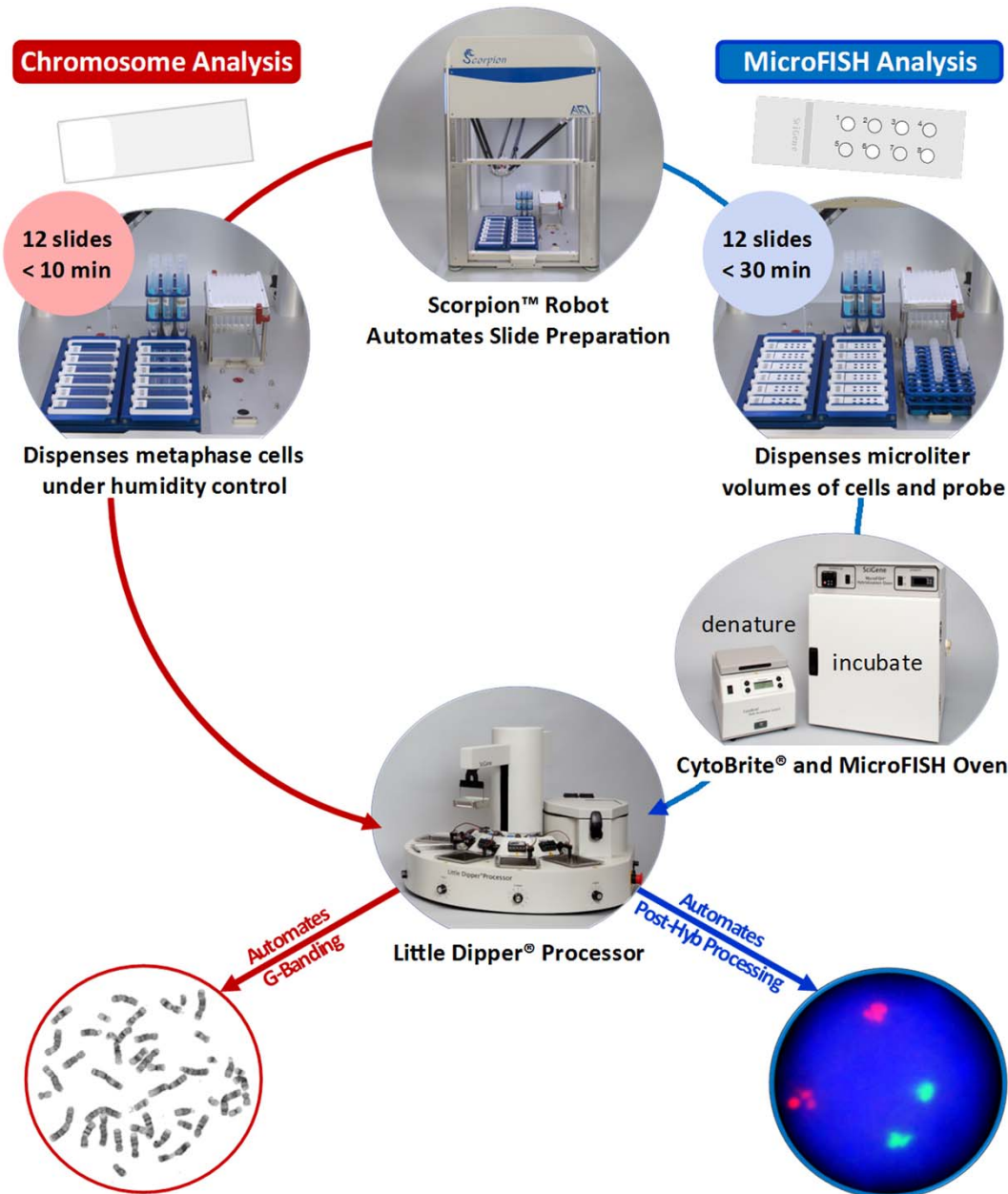
Quality	# Spreads	%
Good	13	65%
Fair	7	35%
Poor	0	0%

70% RH



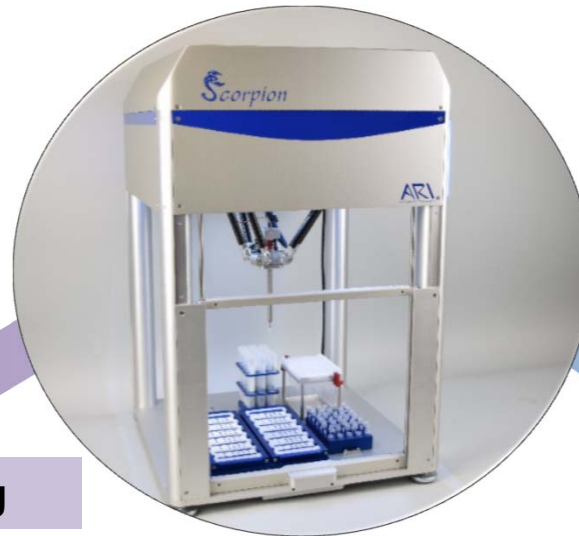
Quality	# Spreads	%
Good	4	20%
Fair	16	80%
Poor	0	0%

A Complete Slide Processing Workflow



Flexible Configuration

Chromosome Slides



Manual G-banding

Automated G-banding

Scorpion™ Robot



Little Dipper® Processor

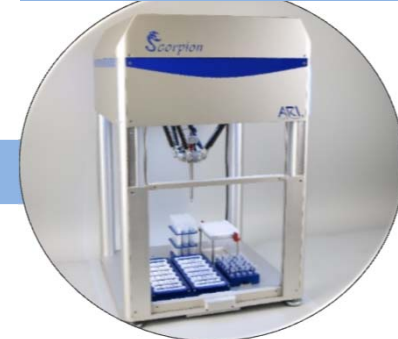
Flexible Configuration

MicroFISH Slides

Manual Prep



Automated Prep



Scorpion™ Robot

>> CORE SYSTEM <<



CytoBrite *PLUS* System
with MicroFISH Oven

Automated Post-Hyb



Little Dipper® Processor

Manual Post-Hyb



Schedule a demo running your
samples and probes

BOOTH 1009

Automated Preparation of Chromosome and FISH Slides

