



# Actero<sup>™</sup> Multiplex (SC) Enrichment Media

for *Salmonella* and *Cronobacter sakazakii*

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Highly Convenient

Always Effective

# Actero™ Multiplex (SC) Enrichment Media for *Salmonella* and *C. sakazakii*

## Competitive Advantages

Actero™ Multiplex (SC) contains an optimized nutritive formula with repair factors which facilitate **rapid recovery** and promote the **concurrent growth** of both *Salmonella* and *C. sakazakii* stressed by desiccation. Carefully picked selective agents allow for **controlling the growth of competing background flora without** adversely affecting the growth of **the target bacteria**.



**One-Step Enrichment**



**Results as Soon as 16h**



**Easy-to-Use**



# EZ-Media Dry Bag Format

Experience the freedom of reducing time, reducing waste, and saving costs.

## 1 Connect



Contains pre-measured  
and pre-sterilized  
enrichment medium

## 2 Fill



Quick to rehydrate through  
the supplied filter

## 3 Mix



Ready to use in less than  
30 minutes

**Actero™ Multiplex (SC)** is only available in EZ-Media Dry Bag,  
experience the **simplicity**.

# Inclusivity and Exclusivity Studies

## Salmonella & Cronobacter

30 *Salmonella* spp. and 32 *Cronobacter* spp., including 21 *C. sakazakii* strains, were tested and found successfully growing in Actero™ Multiplex (SC).

## Competitors

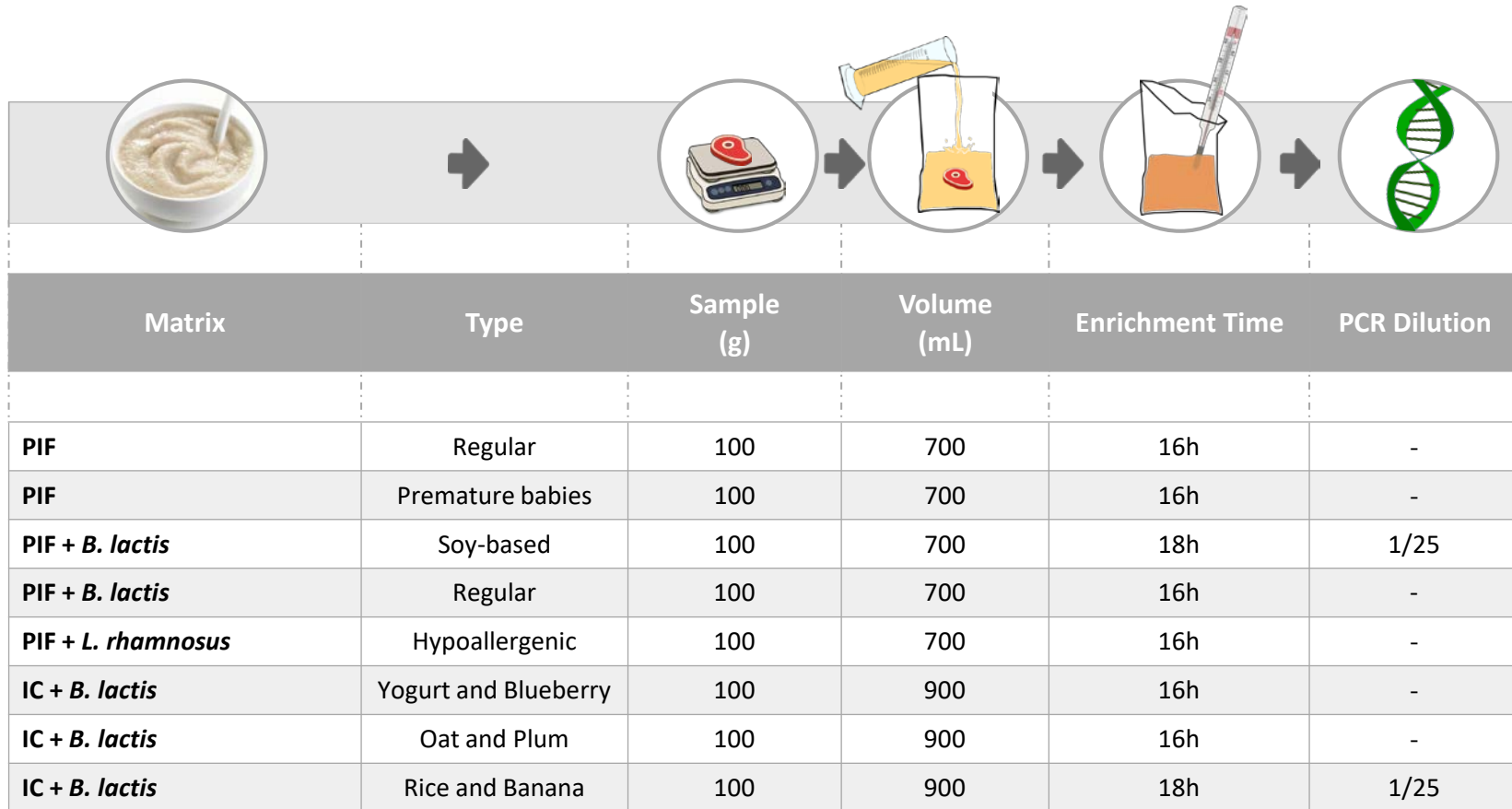
9 of 20 non-target strains did not grow in Actero™ Multiplex (SC), while other 11 strains showed atypical phenotype on selective and differential agars.

Competitor Strain	Result
<i>Alcaligenes faecalis</i> ATCC 8750	Atypical growth
<i>Streptococcus agalactiae</i> ATCC 13813	No growth
<i>Bacillus cereus</i> ATCC 14579	No growth
<i>Carnobacterium divergens</i> ATCC 35677	No growth
<i>Citrobacter freundii</i> ATCC8090	Atypical growth
<i>Enterobacter cloacae</i> ATCC 23355	Atypical growth
<i>Enterococcus faecalis</i> ATCC 19433	No growth
<i>Hafnia alvei</i> ATCC 13337	No growth
<i>Klebsiella pneumoniae</i> ATCC 13883	Atypical growth
<i>Lactobacillus casei</i> ATCC 393/B-1922	No growth
<i>Listeria monocytogenes</i> ATCC 43256	No growth
<i>Proteus mirabilis</i> ATCC 29906	Atypical growth
<i>Pseudomonas fluorescens</i>	Atypical growth
<i>Pseudomonas aeruginosa</i>	Atypical growth
<i>Pseudomonas putida</i>	Atypical growth
<i>Leuconostoc mesenteroides</i> ATCC 8086	No growth
<i>Serratia</i>	Atypical growth
<i>Shigella sonnei</i> ATCC 29930	Atypical growth
<i>Staphylococcus aureus</i> ATCC 25923	No growth
<i>Escherichia coli</i> ATCC 25922	Atypical growth



# Challenging Matrix Testing

## Infant Nutritional Matrices – Sampling and Processing



Notes: PIF – Powdered Infant Formula, IC – Infant Cereal



# Challenging Matrix Testing

## Method Performance Results

Samples			<i>C. sakazakii</i>		<i>Salmonella</i>		<i>C. sakazakii</i> & <i>Salmonella</i>							
Matrix	Type	Total tested	P	N	P	N	SP*	FP	FN	Relative Sensitivity, %	Relative Specificity, %	FP Rate, %	FN Rate, %	Test Efficacy, %
PIF	Regular	10	6	4	6	4	3	0	0	100.0	100.0	0.0	0.0	100.0
PIF	Premature babies	10	4	6	3	7	1	0	0	100.0	100.0	0.0	0.0	100.0
PIF + <i>B. lactis</i>	Soy-based	10	6	4	4	6	2	0	0	100.0	100.0	0.0	0.0	100.0
PIF + <i>B. lactis</i>	Regular	10	7	3	6	4	4	0	0	100.0	100.0	0.0	0.0	100.0
PIF + <i>L. rhamnosus</i>	Hypoallergenic	10	3	7	3	7	1	0	0	100.0	100.0	0.0	0.0	100.0
IC + <i>B. lactis</i>	Yogurt and Blueberry	10	7	3	4	6	3	0	0	100.0	100.0	0.0	0.0	100.0
IC + <i>B. lactis</i>	Oat and Plum	10	5	5	4	6	2	0	0	100.0	100.0	0.0	0.0	100.0
IC + <i>B. lactis</i>	Rice and Banana	10	4	6	5	5	2	0	0	100.0	100.0	0.0	0.0	100.0
<b>Total</b>		<b>80</b>	<b>42</b>	<b>38</b>	<b>35</b>	<b>45</b>	<b>18</b>	<b>0</b>	<b>0</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>	<b>0.0</b>	<b>100.0</b>

Notes: SP\* – Number of samples simultaneously positive for both bacteria

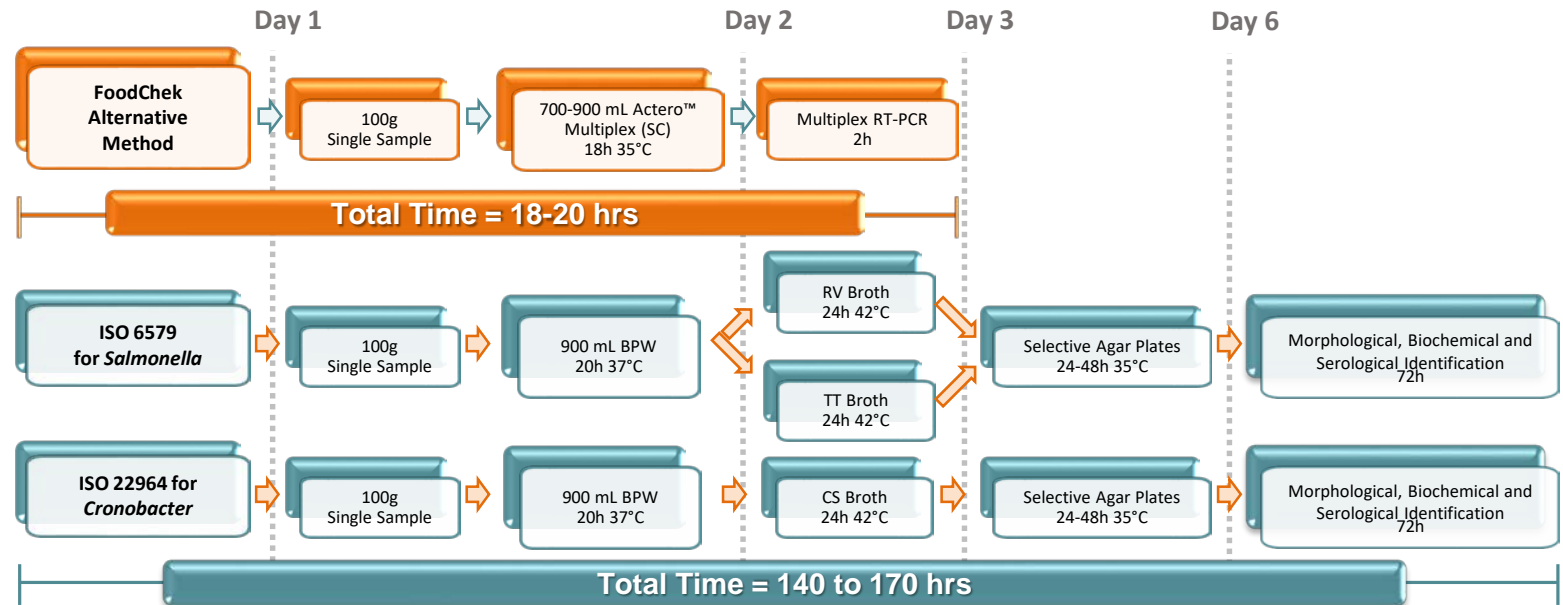
PIF – Powdered Infant Formula, IC – Infant Cereal, P – Positive Outcome, N – Negative Outcome, FP – False Positive Outcome, FN – False Negative Outcome

No false negative or false positive outcomes were observed using Real-Time PCR for the simultaneous detection of *Salmonella* and *C. sakazakii* in infant nutritional matrices enriched in **Actero™ Multiplex (SC)** at 35°C for as short as **16 hours**.



# Method Comparison Study

## Study Flowchart



## Study Results

Method	Target	Positive Outcomes			Final Results	Chi <sup>2</sup>	P
		RT-PCR	Culture				
		16h	16h	48h			
Alternative	<i>Salmonella</i>	5/20	5/20	5/20	5/20	0.5	0.4902
	<i>C. sakazakii</i>	10/20	10/20	10/20	10/20	0.9	0.3373
Reference	<i>Salmonella</i>	–	–	7/20	7/20		-
	<i>C. sakazakii</i>	–	–	13/20	13/20		

The alternative method employing an **16-hrs single-step** enrichment in **Actero™ Multiplex (SC)** showed equivalent performance to the reference methods and allowed for a **significant reduction** of the **time-to-results** for the **simultaneous detection** of *Salmonella* and *C. sakazakii* in **infant nutrition powdered** matrices using RT-PCR.

## Contacts

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Choosing **Actero™** is the **best decision** to **protect**  
your **brand**, your **customers** and their **families**.