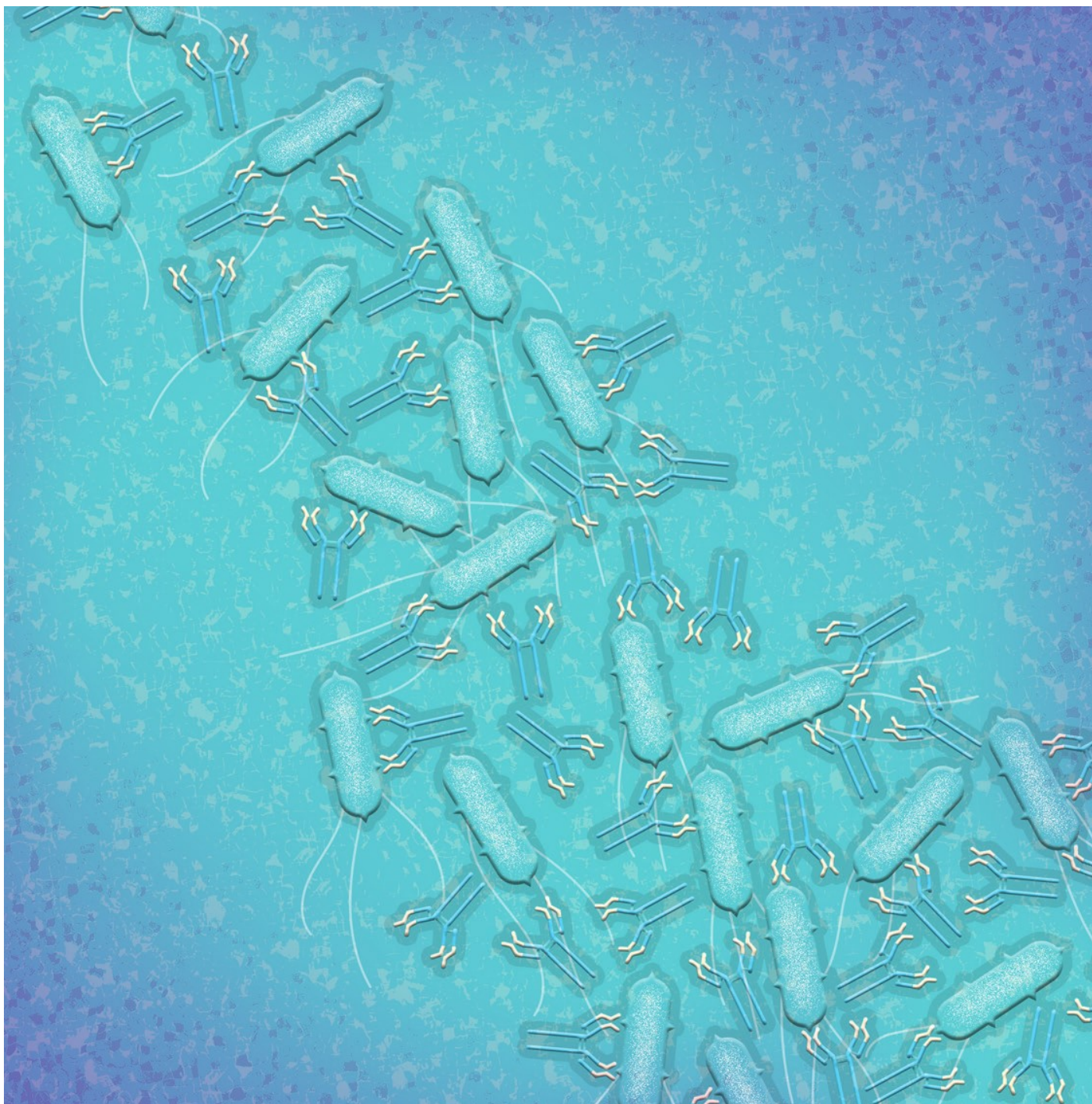


Identification of *Salmonella* by Serotyping

Antisera



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BIO-RAD

Identification of *Salmonella* by Serotyping

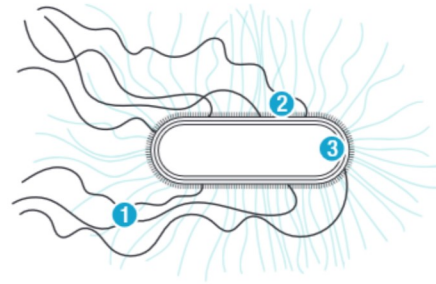
Detect and Identify *Salmonella* in Four Steps



Bio-Rad provides a complete solution for identifying *Salmonella* species, including sample enrichment media, chromogenic media, PCR detection kits, and a large selection of mono or polyvalent antisera.

Expertise in Serotyping

Serotyping is one of the classic tools for epidemiological study. For more than 20 years, Bio-Rad Laboratories, Inc., has offered tools for the accurate identification of microorganisms important in human disease, veterinary science, and food and water safety. Bio-Rad offers an extensive range of *Salmonella* antisera designed for the serological identification of cultures of organisms belonging to the genus *Salmonella* according to the Kauffmann-White classification (see Grimont and Weill 2007) using a qualitative on-slide agglutination method.



Antigenic structure of *Salmonella* used in serological typing.
1, flagella, H antigen; 2, capsule, Vi antigen; 3, cell wall, O antigen.

Antisera for *Salmonella* Identification

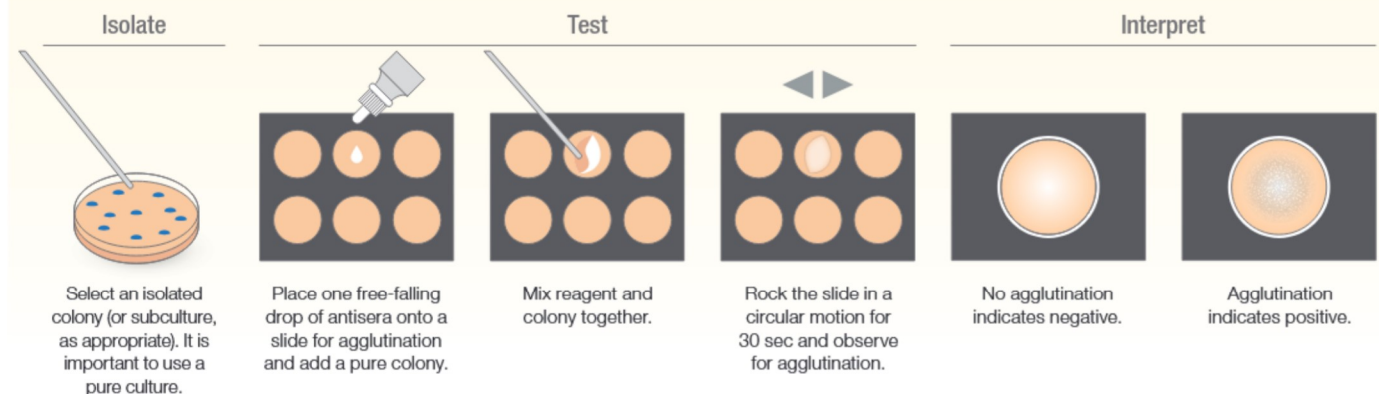
After sample enrichment and detection, confirmed *Salmonella* spp. isolates are tested with Bio-Rad antisera and are observed for agglutination reactions. *Salmonella* species are serotyped according to their somatic (O), flagellar (H), and, if present, capsular (Vi) antigens.



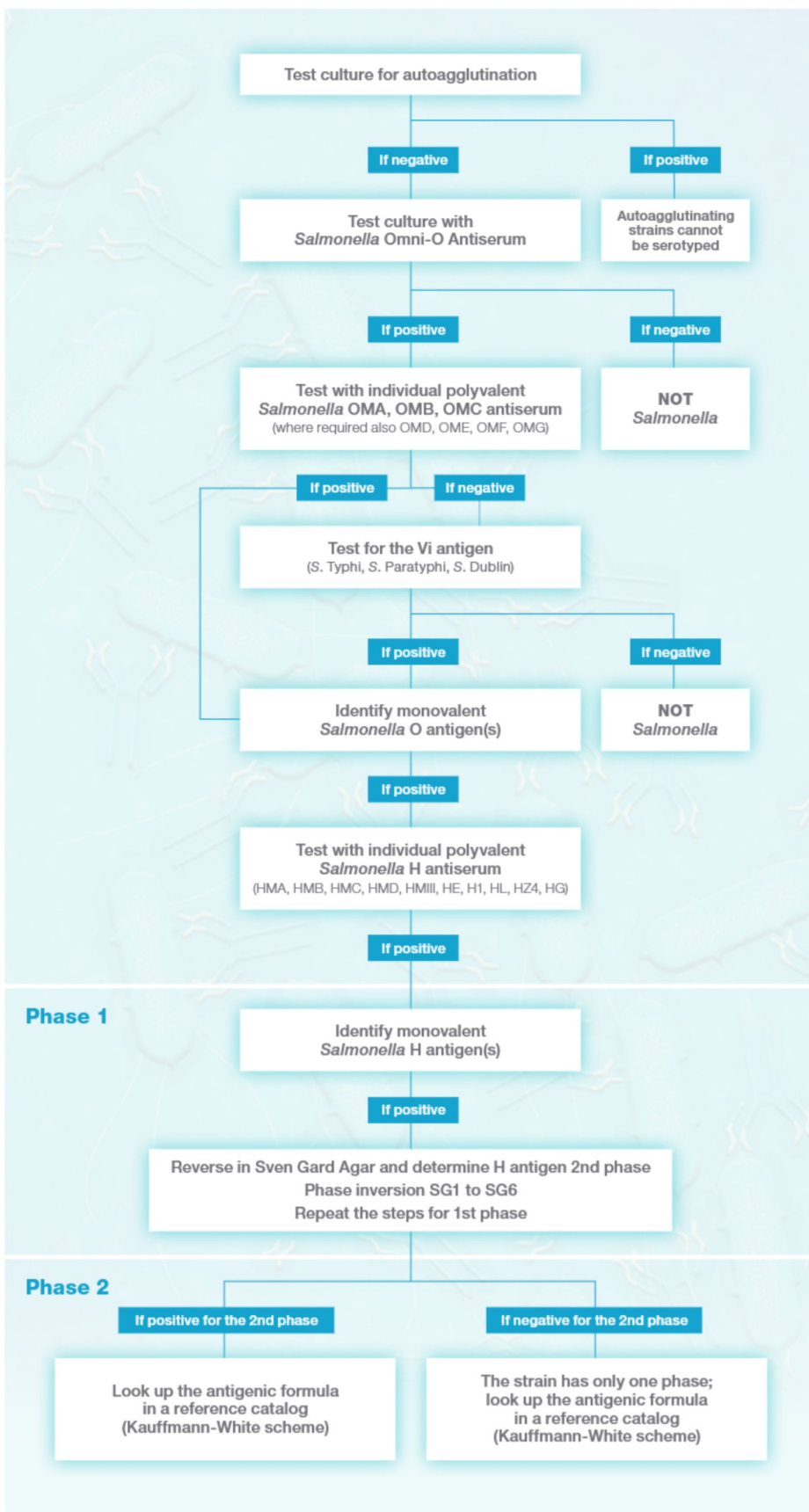
A broad range of antisera in individual 3 ml vials is available.
Cost effective • high quality • rapid results • simple protocol • long shelf life

A Simple Method

Agglutination is the visible expression of the aggregation of surface antigens and antibodies. Slide agglutination reactions create visible aggregates, called agglutinates, that can be seen by the naked eye in a few seconds. The test is easy to use and quickly interpreted.



Salmonella Serotyping Workflow



- 1 Test for autoagglutination; strains that agglutinate in physiological water/saline cannot be serotyped.
- 2 Test with Omni-O Antiserum for the presumptive identification of O-agglutinating strains of *Salmonella*.
- 3 Test with polyvalent O antiserum. The most common groups are OMA, OMB, and OMC.
- 4 When agglutination occurs with one of these three groups, use individual monovalent O antisera to identify the specific O antigen(s).
- 5 When a strain does not agglutinate the OMA, OMB, or OMC polyvalent O sera, test the strain with Vi serum. If a Vi-positive reaction is observed, the bacterial suspension must be heated to 100°C for 30 min, and then tested again with polyvalent antisera and the corresponding monovalent antisera to define the O antigen.
- 6 Test for the H antigen, phase 1. Begin by testing with the polyvalent antisera, followed by the individual monovalent H antisera to identify the H antigen. Once the first H antigen is identified, perform a phase inversion on the isolate to force the organism to repress its dominant H phase and grow in the second phase.
- 7 Test for H antigen, phase 2. Take a culture at the periphery of the inversion zone of the Sven Gard Agar. Start by testing with the H polyvalent antisera. If there is no agglutination, the serotype contains only one phase. If there is agglutination, define the specific H antigen by using the relevant H monovalent antisera.
- 8 Once the antigenic formula with O, H-phase 1, and H-phase 2 are identified, the serotype can now be specified by referring to a reference catalog such as the Kauffmann-White scheme.

Reference

Grimont PAD and Weill FX (2007). Antigenic Formulae of the *Salmonella* Serovars, 9th Edition. World Health Organization Collaborating Center for Reference and Research on *Salmonella*, Institut Pasteur, Paris.

Ordering Information

Catalog #	Description
Salmonella Presumptive Identification	
3560781B	<i>Salmonella</i> Omni-O Antiserum (A-60), 1 x 3 ml vial, 60 tests
3556710	<i>Salmonella</i> Latex Test, 75 tests
Polyvalent O and Vi Sera to Guide Serotyping, 3 ml dropper bottle with 60 tests	
3560801B	<i>Salmonella</i> Polyvalent O Antiserum OMA, Groups A, B, D, E, L
3560811B	<i>Salmonella</i> Polyvalent O Antiserum OMB, Groups C, F, G, H
3560821B	<i>Salmonella</i> Polyvalent O Antiserum OMC, Groups I, J, K, L M, N, O, P
3560831B	<i>Salmonella</i> Polyvalent O Antiserum OMD, Groups Q, R, S, T, U, W
3560841B	<i>Salmonella</i> Polyvalent O Antiserum OME, Groups X, Y, Z, 51–53, 61
3560851B	<i>Salmonella</i> Polyvalent O Antiserum OMF, Groups 54–59
3560861B	<i>Salmonella</i> Polyvalent O Antiserum OMG, Groups 60–67
3560951B	<i>Salmonella</i> Agglutinating Antiserum Vi
Monovalent O Sera for Determination of Antigenic Formula, 3 ml dropper bottle with 60 tests	
3559031B	<i>Salmonella</i> Monovalent Antiserum O:1,2
3559021B	<i>Salmonella</i> Monovalent Antiserum O:4,5
3559062B	<i>Salmonella</i> Monovalent Antiserum O:6,7,8
3559081B	<i>Salmonella</i> Monovalent Antiserum O:7
3559091B	<i>Salmonella</i> Monovalent Antiserum O:8
3559101B	<i>Salmonella</i> Monovalent Antiserum O:9
3559112B	<i>Salmonella</i> Monovalent Antiserum O:3,10,15
3559127B	<i>Salmonella</i> Monovalent Antiserum O:15
3559131B	<i>Salmonella</i> Monovalent Antiserum O:1,3,19
3559141B	<i>Salmonella</i> Monovalent Antiserum O:11
3559162B	<i>Salmonella</i> Monovalent Antiserum O:13,22,23
3559171B	<i>Salmonella</i> Monovalent Antiserum O:6,14,24
Polyvalent H Sera to Guide Serotyping, 3 ml dropper bottle with 60 tests	
3560451B	<i>Salmonella</i> Polyvalent H Antiserum HMA
3560461B	<i>Salmonella</i> Polyvalent H Antiserum HMB
3560471B	<i>Salmonella</i> Polyvalent H Antiserum HMC
3560481B	<i>Salmonella</i> Polyvalent H Antiserum HMD
3560493B	<i>Salmonella</i> Polyvalent H Antiserum HM III, H factors of subspecies III, Arizona
Polyvalent H Sera for Determination of Antigenic Formula, 3 ml dropper bottle with 60 tests	
3560401B	<i>Salmonella</i> Polyvalent H Antiserum H1
3560411B	<i>Salmonella</i> Polyvalent H Antiserum HL
3560391B	<i>Salmonella</i> Polyvalent H Antiserum HE
3560431B	<i>Salmonella</i> Polyvalent H Antiserum HZ4
3560441B	<i>Salmonella</i> Polyvalent H Antiserum HG
Monovalent H Sera for Determination of Antigenic Formula, 3 ml dropper bottle with 60 tests	
3560111B	<i>Salmonella</i> Monovalent Antiserum H:a
3560121B	<i>Salmonella</i> Monovalent Antiserum H:b
3560131B	<i>Salmonella</i> Monovalent Antiserum H:c
3560141B	<i>Salmonella</i> Monovalent Antiserum H:d
3561121B	<i>Salmonella</i> Monovalent Antiserum H:g, m
3561122B	<i>Salmonella</i> Monovalent Antiserum H:g, p
3561119B	<i>Salmonella</i> Monovalent Antiserum H:h
3560161B	<i>Salmonella</i> Monovalent Antiserum H:i
3560171B	<i>Salmonella</i> Monovalent Antiserum H:k
3561117B	<i>Salmonella</i> Monovalent Antiserum H:m
3561118B	<i>Salmonella</i> Monovalent Antiserum H:p
3561124	<i>Salmonella</i> Monovalent Antiserum H:q
3560201B	<i>Salmonella</i> Monovalent Antiserum H:r
3560202	<i>Salmonella</i> Monovalent Antiserum H:s
3561115B	<i>Salmonella</i> Monovalent Antiserum H:v
3561116B	<i>Salmonella</i> Monovalent Antiserum H:w
3561123B	<i>Salmonella</i> Monovalent Antiserum H:x
3560211B	<i>Salmonella</i> Monovalent Antiserum H:y
3560221B	<i>Salmonella</i> Monovalent Antiserum H:z

Catalog #	Description
3560241B	<i>Salmonella</i> Monovalent Antiserum H:z10
3561111B	<i>Salmonella</i> Monovalent Antiserum H:2
3561112B	<i>Salmonella</i> Monovalent Antiserum H:5
3561113B	<i>Salmonella</i> Monovalent Antiserum H:6
3561114B	<i>Salmonella</i> Monovalent Antiserum H:7
Anti-H Phase Inversion Polyvalent Sera (Sven Gard method), 3 ml dropper bottle with 60 tests	
3561011B	<i>Salmonella</i> Polyvalent Antiserum SG1
3561021B	<i>Salmonella</i> Polyvalent Antiserum SG2
3561031B	<i>Salmonella</i> Polyvalent Antiserum SG3
3561041B	<i>Salmonella</i> Polyvalent Antiserum SG4
3561051B	<i>Salmonella</i> Polyvalent Antiserum SG5
3561061B	<i>Salmonella</i> Polyvalent Antiserum SG6
Real-Time PCR Kits	
3578123	iQ-Check™ <i>Salmonella</i> II Kit, 96 reactions
3578142	iQ-Check S. Enteritidis PCR Detection Kit, 96 reactions
12004306	iQ-Check S. Typhimurium PCR Detection Kit, 96 reactions
Enrichment Supplements	
3564709	RAPID' <i>Salmonella</i> Capsules, 10x concentrated, 100 capsules
3564710	RAPID' <i>Salmonella</i> Capsules, 1x, 100 capsules
3564712	RAPID' <i>Salmonella</i> Agar, Supplement Box, 100 analysis
Nonselective Enrichment and Media	
3553430	Sven Gard Agar, 25 x 25 ml tubes, soft agar, for demonstrating the inapparent H antigen phase of biphasic <i>Salmonella</i>
3564684	Buffered Peptone Water Plus, 500 g
3554179	Buffered Peptone Water Plus, 6 x 225 ml bottles
3555795	Buffered Peptone Water Plus, 4 x 3 L bags
3555790	Buffered Peptone Water Plus, 2 x 5 L bags
12013259	Buffered Peptone Water Standard, dehydrated, 500 g
12013260	Buffered Peptone Water Standard, 2 x 5 L bags
3564426	Modified Tryptone-Soy Broth (mTSB) Base, dehydrated, 500 g
3555426	Modified Tryptone-Soy Broth (mTSB) + Novobiocin, ready to use, 6 x 225 ml bottles
Diluent and Physiological Waters	
3554154	Distilled Sterile Water, 25 x 9 ml tubes
3554164	Saline Sterile Water, 25 x 9 ml tubes
3561723	Disposable Agglutination Cards, 3 x 15 cards
RAPID'<i>Salmonella</i> Chromogenic Media	
3563961	RAPID' <i>Salmonella</i> Agar Plates, 20 x 90 mm plates
3563963	RAPID' <i>Salmonella</i> Agar Plates, 120 x 90 mm plates
3564705	RAPID' <i>Salmonella</i> Agar Plates, dehydrated, 500 g for 11.5 L of medium
Selective Enrichment and Media	
3556140	Muller-Kauffmann Tetrathionate Novobiocin Broth (MKTn Broth) Tubes, 50 x 10 ml tubes
3564714	Muller-Kauffmann Tetrathionate Novobiocin Broth (MKTn Broth), dehydrated base, 500 g
3556139	MSRV Medium (Semi-Solid Rappaport Vassiliadis Medium), 6 x 200 ml bottles
3564325	MSRV Medium (Semi-Solid Rappaport Vassiliadis Medium), dehydrated, 500 g
3555773	Rappaport Vassiliadis Soya (RVS) Broth Tubes, ready to use, 50 x 10 ml tubes
3564324	Rappaport Vassiliadis Soya (RVS) Broth, dehydrated, 500 g

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