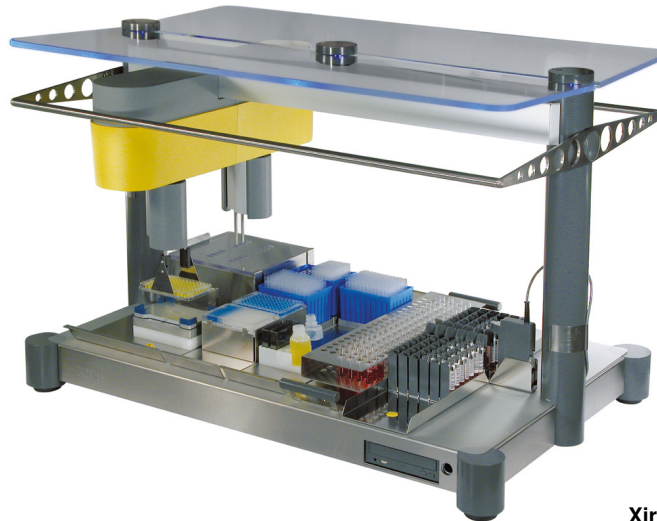




## MRSA extraction protocol on the Xiril robotic workstation



**Xiril X100-1-4**

MRSA (methicillin resistant *Staphylococcus aureus*) is a resistant variation of the common bacterium *Staphylococcus aureus*. It has evolved an ability to survive treatment with beta-lactam antibiotics and is especially troublesome in hospital-associated infections. Consequently most hospitals screen samples from both patients and other possible contamination sources. These samples are first cultivated, then boiled and finally analysed by qPCR (quantitative polymerase chain reaction).

Xiril offers an optimal implementation of the DNA extraction on its highly accurate robotic workstations and allows a high throughput of samples with small input of time and manpower. This fully automated method allows the extraction of 96 samples within 50 minutes and enables a straightforward and cost-effective solution. Furthermore it offers the possibility to implement other actions such as the PCR setup without major investments.

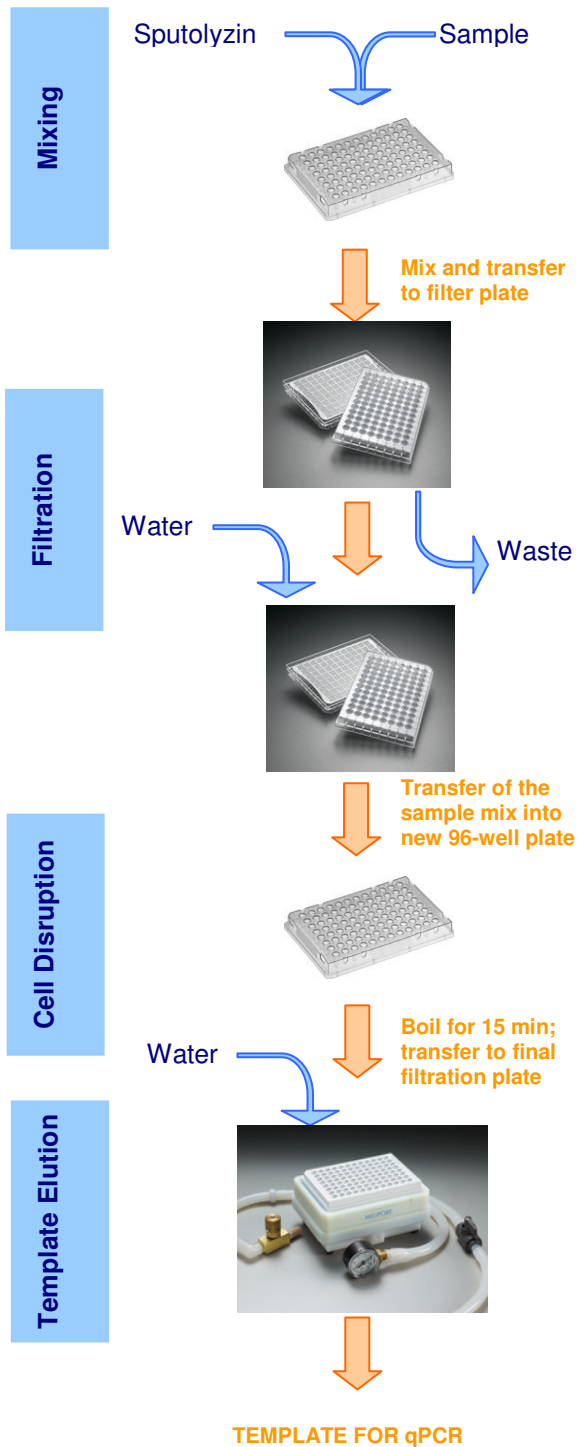
### Key Features:

- High capacity, 96 samples within 50 min (eight pipettes)
- Ready to use system
- Reliable and reproducible operation
- Low cost: end user price for one extraction is approx. 1 € (including tips)
- Optional sample identification

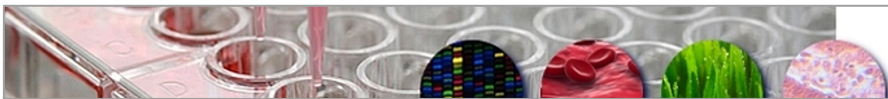


## Application guide

### I. Description



1. Mix 20  $\mu\text{l}$  of Sputolyzin with 200  $\mu\text{l}$  of sample.
2. Transfer 200  $\mu\text{l}$  to pre wetted filter plate.
3. Place under vacuum, discard flow through.
4. Add 200  $\mu\text{l}$  of water into the filter plate and transfer 150  $\mu\text{l}$  thereof into a new plate on the thermomixer.
5. Incubate at 90  $^{\circ}\text{C}$  for 15 min.
6. Transfer 150  $\mu\text{l}$  into a new filter plate.
7. Place under vacuum and collect flow through.
8. Wash filter with additional 35  $\mu\text{l}$  of water and place again under vacuum, collect flow through.



## Application guide

### II. Capacity and Throughput

The Xiril robotic workstations are easily configured to meet different demands for capacity and throughput. Two deck sizes (100-series and 150-series) and the option of four or eight pipettes provide the flexibility to readily meet your requirements. Refer to table 1 below for approximate throughputs for 96 samples for two different instrument configurations.

Table 1: Throughputs for 96 samples for the 100-series instruments with 4 or 8 pipettes.

Instrument	Run duration [minutes]
100-series, 1 arm, 4 pipettes	75
100-series, 1 arm, 8 pipettes	50

### III. Automated Processing Requirements for the 100-series with One Robotic Arm and Four Pipettes

#### A. XIRIL ROBOTIC WORKSTATION DECK SETUP

This is an example of the MRSA extraction deck layout on a 100-series-1-4 robotic workstation for use with one plate (96 samples). The layout can be easily configured to user's needs with the flexibility to position hardware and labware freely on the instrument deck. If needed the sample identification and tracking can be enabled by different methods: Import of a sample file (e.g. LIMS), which is implemented in the Lirix software, handheld barcode reading, plate scanning (100- and 150-series) and finally tube scanning (only available for 150-series). Please refer to the figure below for the recommended deck layout.

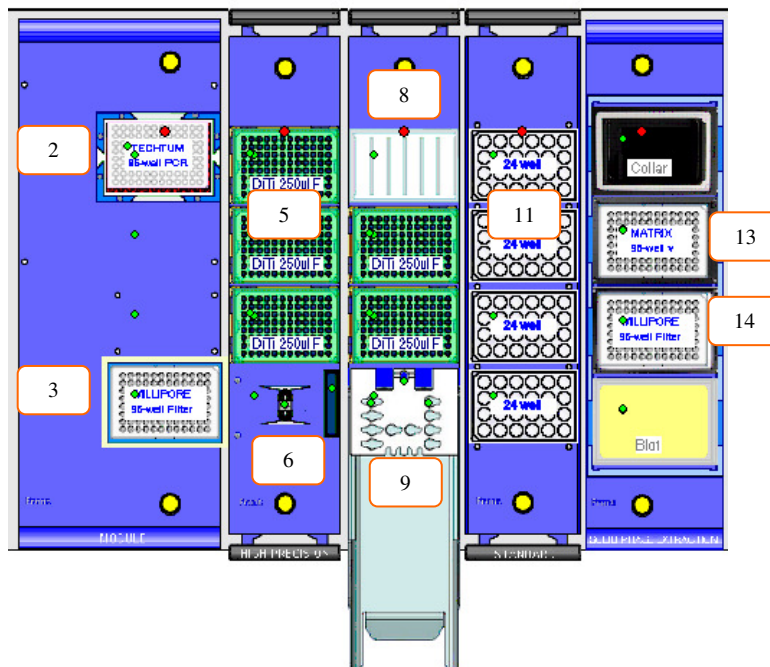
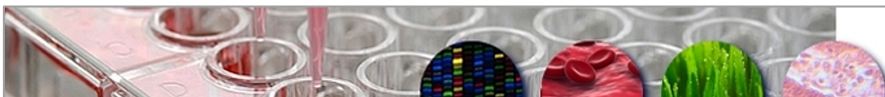


Figure 1: Deck layout for MRSA extraction kit on the Xiril 100-1-4 robotic workstation.

1: Module Decktray, 2: Thermo-ShakeX with PCR 96-well plate, 3: Millipore manifold and filter plate, 4: High Precision Decktray, 5: 250 µl Rainin filter tips, 6: Plate-GripX and liquid waste, 7: High Precision Decktray, 8: Reagent rack incl. 6 troughs, 9: Tip waste station, 10: Standard Decktray, 11: 24-well microplate, 12: SPE Workstation, 13: 96-well microplate, 14: 96-well Millipore filter plate



## Application guide

### B. MATERIAL SUPPLIED WITH THE XIRIL ROBOTIC WORKSTATION

The following is a list of Xiril parts (see table 2) that are required for automation of the MRSA extraction on the 100-series-1-4 robotic workstation.

Table 2: List of the required Xiril parts.

Part number	Part Description	Quantity
900 004	Xiril 100 incl. in-built PC, one robotic arm, four pipettes (2-250 µl)	1
950 044	High Precision Decktray with tip waste on position 3	1
950 005	Standard Decktray with 4 rack positions	1
950 050	Module Decktray left	1
950 007	High Precision Decktray (4 racks positions)	1
920 027	Thermo-ShakeX 95C (heated micro plate shaker)	1
920 009	SPE (Solid phase extraction) workstation	1
950 012	Adapter for Rainin disposable tip rack	5
950 078	Reagent rack for 6 troughs	1
920 008	Plate-GripX, gripper for objects with a microplate footprint	1
950 020	Trough, reagent container (10 X 50 ml)	1
950 052	Liquid waste reservoir	1
MSVMHTS00	MultiScreen HTS vacuum manifold (Millipore)	1

### C. MATERIAL SUPPLIED BY THE USER

The following is a list of material that is required for the automation of the MRSA extraction which can be provided by Techtum Lab AB (Yrkesv. 5, SE90420 UMEÅ, SWEDEN, [www.techtum.se](http://www.techtum.se)). It is also possible to purchase these articles directly from the manufacturers.

Table 3: List of the required material for 2400 reactions.

Part	Quantity [package]	Ordering Information
Filtration plates (50 pieces)	1	Millipore, Cat. # MSNANLY50
V-bottom polypropylene plates	1	Matrix, Cat. # 4919
Rainin 250 µl disposable tips filtered	12	Rainin, Cat. # RT-L250F
Chimney top 96-well thermal cycling plate, unskirted	3	Robbins, Cat. # 96-ET