Akdeniz University Hospital
Antalya, Turkey

Prof Dr Sebahat Ozdem, Vice Director of the Central Laboratory
Prof Dr Gultekin Yucel, Director of the Central Laboratory
Prof Dr Halide Akbas, Vice Director of the Central Laboratory
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Akdeniz University Hospital is one of the top hospitals in Turkey, specializing in kidney, liver and tissue transplantation. Their expertise in this field means they play an important pioneering role and now, the hospital accepts patients from all over the world. With another building currently under construction that will double capacity, this success and continued growth places huge pressure on the hospital’s central laboratory, whose team has been harnessing the power of Roche’s modular platform solutions to meet demand and maintain impeccable standards.
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- Central Laboratory
- 600 beds
- 5.5 million results per year
Consolidated testing delivers power and performance

Prof Dr Gultekin Yucel is head of the central laboratory at Akdeniz University Hospital in Turkey. Along with three colleagues, he is responsible for ensuring the laboratory delivers analysis in the areas of biochemistry, microbiology, immunology, haematology and genetics.

While the hospital is renowned for its transplantation expertise – and the central laboratory does provide some specialized transplant testing – the bulk of the team’s work comes from serving general patients. With 1,000 outpatients and 1,000 hospitalized patients this means approximately 15,000 tests every day. And with another hospital building currently under construction (which will add another 300 – 600 beds) the team needs an integrated system that can cope with ever-increasing demand.

Traditionally Prof Dr Gultekin Yucel and his team had relied upon a MODULAR ANALYTICS <PPP> configuration for routine clinical chemistry analysis and a second MODULAR ANALYTICS <PPP> configuration for emergency clinical chemistry tests. These were supported by a MODULAR ANALYTICS E170 analyzer for immunochemistry analysis. However, as workloads increased, it became clear that this system couldn’t deliver the capacity required. That is why they turned to the cobas® 8000 modular analyzer series.

The new integrated system is much faster than the MODULAR ANALYTICS <PPP> setup and means the laboratory can consolidate a huge amount of testing into one analyzer. But it is not just about speed as Prof Dr Halide Akbas testifies:

“Being able to do things quicker is obviously an advantage but the real benefit of having the cobas® 8000 modular analyzer series is that it combines so many useful features into one. We can see all of the controls on a single screen. We have a much better serum indices program. We can consolidate so much of our testing. It all adds up.”
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Delivering a high quality transparent service

The cobas® 8000 modular analyzer series produces high quality results time and time again. Its data manager has been designed to consolidate quality control, instrument monitoring and patient traceability information in one unit. This makes the lives of the responsables like Prof Dr Halide Akbas so much easier – helping her to improve the quality of service she is able to give to the doctors:

“The quality controls are excellent and so easy to use. It’s great to know that every morning we can see all of our QC results at the touch of a button – all on one screen. We also use the data manager to help with patient traceability. We need to store calibrator and control results for 10 years – and the patient results for at least the same amount of time – so the ability we now have to access and store these details is vital. It allows us to provide a much more transparent operation.”

This service is enhanced still further thanks to the speed at which the tests can be completed. The unique reagent cassettes require no preparation and the cobas® 8000 modular analyzer series benefits from continuous reagent cassette loading and unloading without interruption of the workflow processes. This means quick results – even for a team that uses 41 parameters in its immunochemistry systems.
“The cobas 8000 modular analyzer series produces high quality results time and time again.”
Intelligent workflow management

One of the key benefits of the cobas® 8000 modular analyzer series is that it can connect to the pre-analytical MODULAR® PRE-ANALYTICS EVO (MPA) system from Roche. At the Akdeniz University Hospital they have integrated the MODULAR® PRE-ANALYTICS EVO (MPA) system into their laboratory (only the third of its kind to be installed in Turkey) which has revolutionized sample preparation.

“We used to have two technicians that were responsible for separating blood samples. They would centrifuge all samples and then aliquot into secondary tubes. All sample numbers were recorded manually which meant that anyone visiting the blood preparation center had to check the list for their patient numbers and then take their sample back to their laboratory. But this was a very tedious, complicated and labor-intensive system. Sometimes, if we spotted problems in blood samples, we struggled to find our primary sample. The contamination risk was high too given the difficulty of transferring samples between tubes.”

Thanks to the MPA all tubes are now barcoded and scanned electronically before being fed straight to the cobas® 8000 modular analyzer series. There is improved traceability and less scope for human error. It is a true workhorse too, capable of handling up to 400 primary samples (and 800 aliquots) per hour – meaning it has enough capacity to cope even during peak times. As efficiency increases, the headcount has reduced. The team estimates that they would need maybe five or six people to prepare samples based on their old system. Now, with the MPA, they have only one. The other people have not been lost though. They’ve been able to retrain and are now deployed in more sophisticated roles – enhancing the overall quality of service that the laboratory is able to provide. And as the hospital continues to grow, the MPA can too. The team is already planning to introduce a second centrifuge unit, which will be a straightforward addition thanks to Roche’s modular concept. Just like the cobas® 8000 modular analyzer series, if the situation changes, the laboratory team can plan and react with the addition of new modules. They are in complete control.

Automation is key – from beginning to end

As we saw with the world’s first triple limb transplant, the Akdeniz University Hospital has a reputation for being a pioneer in its field. Its central laboratory is no different. The laboratory will set new standards when it becomes the first in Turkey to take advantage of the flexibility of cobas® 8000 modular analyzer series and link it to a post-analytic unit to offer a fully automated process.

“At the moment we can only preserve samples for two days because our refrigerator capacity is so small. By introducing the post-analytical unit, we’ll be able to preserve samples for two weeks. It will help us to eliminate mistakes and ensure everything is more reliable too. No other laboratories in Turkey can offer this level of automation. That makes us proud.”

This innovation is one of the reasons that the hospital often welcomes laboratory teams from across the world to see what a difference exemplary standards and a high level of automation can make.
“The MPA is a true workhorse capable of handling 400 primary samples (and 800 aliquots) per hour.”
When the Akdeniz University Hospital first decided to explore the possibility of laboratory integration, Roche’s know-how and experience proved to be invaluable in helping to shape the laboratory’s future. This has been the key to ongoing success, as Prof Dr Gultekin Yucel explains:

“Roche presented their proposed solutions in the context of what we knew were our needs for the future. Their approach was very analytical in terms of our lab structure and the simulations they ran worked very well when applied to real data. After they won the tender, they brought everything together successfully – including the layout and infrastructure of the laboratory. The analytical configuration went in first and then, once they were running as required, the MPA system was put in place. It meant that the new setup could be implemented without any negative impact on patient results or routine services.”

This approach continues today as both parties work hard to break new ground together. It is not just about instruments and technical features; the key is new developments in science as Prof Dr Halide Akbas explains:

“So, for me Roche is one of the leading diagnostic companies in Turkey and they are trusted because they invest in science and always look to the future. They’ve introduced the first post-analytic unit in Turkey, they’ve got huge experience with pre-analytical units and they are always suggesting new ways of working to us. But, importantly, they also support our scientific research. With their help we can undertake new scientific studies and that’s crucial. We’re a University Hospital. We’re involved in education.”

By delivering more efficient processes, better control and improved quality, Roche enables the laboratory team to focus on what they do best. Pursuing innovation. Their fully automated system is the first step on a bigger journey.
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