How would you explain the main findings of your paper to non-scientific family and friends?
Cancer is a combination of mutations and abnormal pathways that may differ from one person to another. For example, if two patients have the same cancer we may find each patient with different genetic mutations or abnormal pathways. Therefore, both patients may have a different response to the treatment. To understand and investigate these abnormalities we need to have cells growing in the laboratory to identify mutations and therapies’ targets, and then test the potential drugs that may kill cancer cells in what is known as ‘precision medicine’. Therefore, here we were able to grow primary cells from patients’ salivary glands tumors using a technology known as conditional reprogramming cell culture (CRC) that propagates epithelial cells. Then, we investigated gene mutations and abnormal pathways using DNA and RNA sequencing. Finally, we identify a pathway that has been previously reported in different types of cancer known as the AKT pathway, and test drugs that inhibit this pathway that could be a potential treatment for such cancer.

What are the potential implications of these results for your field of research?
There are two implications: (1) Salivary glands neoplasms (SGNs) are rare cancers that lead to limited access to these rare patient tumors and the inadequacy of understanding of SGNs pathophysiology. Establishing primary cells will provide a promising contribution to the field with more access to these tumors and will help in understanding the pathophysiology of SGNs. (2) We were able to develop a workflow that was efficient in generating primary cancer cell cultures and performed genetic and chemosensitivity studies that demonstrated the reproducibility of this approach. This approach can be applied to different types of tumor.

“[…] we established and propagated primary cells from a small tumor that preserved pathways as if the original tumor and that made us confident about this model.”

Ahmad Alamri’s contact details: College of Applied Medical Sciences, King Khalid University, Saudi Arabia.
E-mail: aalamri@kku.edu.sa

**What's next for you?**

I am interested in precision medicine, and my long-term goal is to implement this as a routine practice in clinical laboratories while exploring new technologies and directions as a translational researcher. That is why I chose to work on establishing and then exploiting preserved primary cells from patients to identify high probability therapeutic targets and test sensitivity to candidate agents. In my current work in salivary mucoepidermoid cancer, I accomplished this goal using CRC in combination with next-generation sequencing (RNAseq and exome sequencing) and direct chemosensitivity testing under different growth conditions, and it will allow me to apply this approach to various tumors here in Saudi Arabia.

**Reference**