



September 1, 2021

Dissertation Council
Asfendiyarov Kazakh
National Medical University
Almaty, Kazakhstan

RE: Jandos Amankulov, PhD Candidate

Dear Dissertation Council:

In 2016, Dr. Jandos Amankulov contacted me and provided preliminary information about his upcoming dissertation research on optimization of colorectal cancer (CRC) screening and staging. I have found his research project interesting and commensurate with my scientific interests in the area of computed tomography (CT) colonography (CTC). In fact, I have published over 100 peer-reviewed papers on this topic, including two papers in the *New England Journal of Medicine*, one of which is among the highest cited papers in the entire field of radiology. I am delighted to see that Dr. Amankulov's PhD work is now in its final stage: the public defense of the dissertation. I am very pleased to present to the Dissertation Council of Asfendiyarov Kazakh National Medical University this letter regarding a summary of Dr. Amankulov's PhD research.

I have reviewed Dr. Amankulov's research study that focused on CRC screening among an average risk population aged 45-75 years of the Almaty region, using CTC as a primary screening test. The team utilized a CTC screening protocol consisting of a 1-day polyethylene glycol (PEG)-based bowel preparation without low-fiber diet. In addition, the authors have assessed Natural killer cells activity as a potential biomarker for CRC among average risk population undergoing CTC screening. The results of this work were recently published in *Clinical Endoscopy*, an international journal (Amankulov J, et al. Colorectal Cancer Screening with Computed Tomography Colonography: Single Region Experience in Kazakhstan (2021)). This is an excellent work in my opinion, with very encouraging results that could positively impact your population's health if broadly implemented.

In addition, Dr. Amankulov has evaluated the diagnostic accuracy of 3 Tesla Magnetic resonance (MR) tomography in rectal carcinoma staging, with the results also published in 2021 (Amankulov J, et al. Single-centre evaluation and staging of rectal carcinoma on a 3-Tesla magnetic resonance imaging and correlation with histological profile. *Polish Journal of Radiology*). As per Dr. Amankulov, results of the third part of his research will be an article entitled "Natural killer cells activity level in colorectal cancer screening in average risk population", which is currently under review in a first quartile journal.

Dr. Amankulov's research appears to be the first related to the screening of an average risk Central Asian population for CRC using CTC as a primary test. From Jandos' study background, I see that Kazakhstan has implemented a National CRC screening program using primary fecal immunochemical test (FIT), with colonoscopy follow up of positive cases. However, the published results of the effectiveness of CRC screening using such an approach demonstrated low screening coverage and a low detection rate of advanced neoplasia (advanced adenomas and CRC). Moreover, the refusal rate of colonoscopy among FIT positives has reached 45%.

Based on the existing literature, there is a lack of information about the effectiveness of CTC screening for CRC among Central Asian population. The Asian Pacific Working Group for CRC Screening do not recommend



using CTC as primary screening test citing week evidence in this area. Continued scientific research on CRC screening with CTC in Asian countries will determine the geographical, economical, and socio-demographical specificities of implementing CTC and will contribute to increasing the scientific evidence on CRC screening.

Throughout his planning process, methodology, and results, Dr. Jandos Amankulov has proved himself as an intelligent and motivated researcher. Dr. Amankulov has demonstrated excellent analytical and organizational skills during the implementation of scientific research under his dissertation work. It appears to me that Dr. Amankulov has clearly achieved the goal of his dissertation thesis, which is to improve the diagnosis of CRC. As such, he should be congratulated on successfully completing such a large study and in my opinion has earned the title of Doctor of Philosophy (PhD). Please feel free to contact me with any questions.

Sincerely,

Perry J. Pickhardt, MD

Professor, Radiology
Chief, Gastrointestinal Imaging
Medical Director, Cancer Imaging
University of Wisconsin School of Medicine & Public Health

Foreign research adviser on the dissertation work of Jandos Amankulov, PhD Candidate at Asfendiyarov Kazakh National Medical University, Almaty/Kazakhstan.