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Welcome to the Valley Fever Center for Excellence's website. Here we try to provide reliable and timely information about coccidioidomycosis, the medical name for Valley fever.

As described in my last posting, the January 22, 2022 editorial from the Arizona Republic, the Arizona Board of Regents and the UArizona College of Medicine-Tucson included a management plan in the recently created "New Economy Initiative" for the state. While a steering committee is only just now developing the structure to coordinate the collaboration of the three state universities in this program, already these efforts have paid off. Last month, a proposal created by six university faculty, two each from ASU, NAU, and UArizona, received \$3.3 million in funding from the Translational Research Investment Fund that is supported by a half-cent state sales tax. This proposal addresses one of the state's Department of Environmental Quality's needs and has the potential to significantly reduce the impact of Valley fever across the state. It was the topic of an Arizona Republic newspaper report April 29th (see <https://www.azcentral.com/story/news/local/arizona-health/2022/04/29/valley-fever-research-az-gets-3-3-million-grant-state/7311812001/>).

Valley fever is endemic to certain parts of the Western United States because the soils of those parts of the country are favorable for the Valley fever fungus to reside. Even in highly endemic regions, such as the Sonoran Deserts of Arizona, the fungus only grows in very small portions of the land. In a sense, this is like wild flowers that appear in some places but not others and just by looking at the land it is not at all obvious why they grow where they do. This spotty nature of fungal residence in the soil has been known for a long time, and while there were some attempts to better understand the reasons for this distribution in the 1950s and '60s, it has remained poorly understood and unstudied further. This just-announced funding to the Valley Fever Collaborative will re-open work in this area.

The six collaborating faculty have varied areas of expertise. NAU has a long-standing interest in the ecology of soil-dwelling microbes, including the Valley fever fungus. There is also a focus on assembling their genomes from environmental samples. ASU faculty have extensive experience in collecting particles on filters from large-volume air samples. This can be a source of genetic material that, like from soil, could be assembled into genomes. One of the UArizona faculty is an accomplished soil chemist who specializes in characterizing unique qualities of soil which might provide the reason for where the fungus chooses to become a resident. Another is a physician who can work with Arizona's clinical labs to obtain fungal isolates for genomic sequencing from patient specimens. This project depends upon all of these different skills, and without the creation of the Valley Fever Collaboration, the proposed work could not have been undertaken.

There are two important results that may come from this research. First, analysis of the chemistry of the soils where the Valley fever fungus has already been found may identify a method for predicting other parts of the desert where the fungus is likely to also exist. That information would provide information to construction projects that special precautions would be needed to reduce or eliminate the risk of workers on the site from becoming infected when the soil is disrupted. It might also provide locations where technologies could be employed that reduce wind-generated dust and spores from being released into the air. A second finding might be to link fungal genomes from several patients or genomic sequences from patients and environmental samples. Discovering such clusters could identify

particular fungal “hot spots” which are a particularly important source of Valley fever infections and prime candidates for remediation.

It is gratifying that so soon after the formation of the Valley Fever Collaborative a substantial research award has followed. The strength of aggregating specialized expertise from many sources is obvious and should be repeated frequently. Developing better diagnostics, curative drugs, and the very promising vaccine discovered at UArizona are all areas of need that would benefit from investigators working together. The Valley Fever Center for Excellence is in full support of future group projects to better manage this major public health and economic problem for the state.