



# THE CONNECTION

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Economic Development and Our Community

*NTX Life Sciences:  
Analyzing the Biotechnology  
R&D Industry  
(NAICS 541714)*

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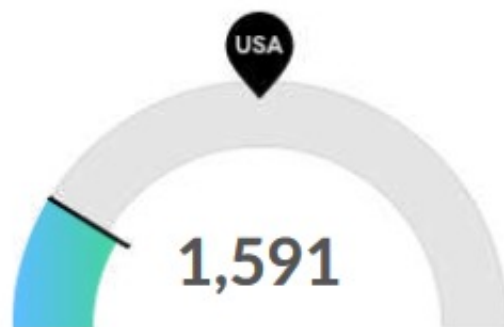
## Executive Summary

One of the regional aims of the Metroplex is to diversify our local economy and keep pace with the growing trends in technology. The Biotechnology and Life Sciences Industry has been identified as a potential catalyst for this growth, and major efforts have been underway to try and attract companies from this sector to the region.

While DFW is not completely devoid of firms operating in this sphere, it is fair to state that the concentration is notably lower than many other areas which have seen success in the industry such as Boston-Cambridge-Newton, MA-NH or San Francisco-Oakland-Berkeley, CA. Here, these industries are well established and have a solid concentration of workers engaged in the sector. From the labor supply-side this can be attractive for companies concerned about workforce availability, but it does come at a price. In these markets, it is much harder to be an employer of choice, and many must resort to increasing wages or enhancing their benefits to compete against other companies.

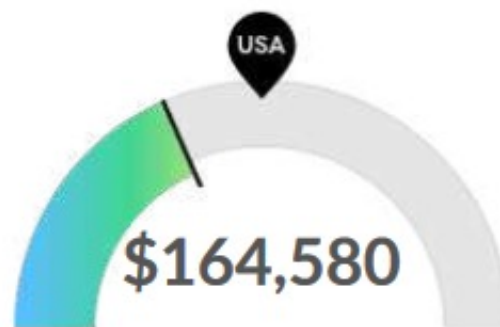
This presents an opportunity for our area. The purpose of this analysis is to highlight how the DFW region can leverage our existing workforce to meet the needs for Biotechnology and Life Sciences companies to move or open new operations here. We find that while our concentration of workers in this industry is low, the number of potential workers that could be trained to fill these positions is high. Many of our workers are already in occupations which are in high demand for the industry, so the challenge is not to train them or attract new talent, but simply to create the jobs in this sector.

## Light Hiring Competition Over a Thin Supply of Regional Talent



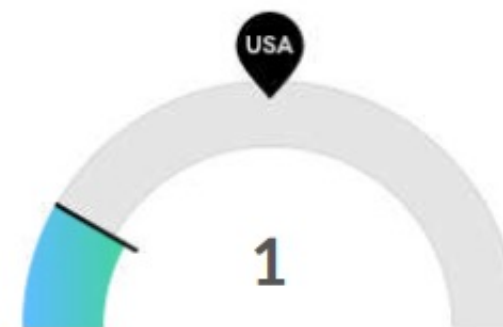
Supply (Jobs)

Dallas-Fort Worth-Arlington, TX is not a hotspot for this kind of talent. The national average for an area this size is 5,722\* employees, while there are 1,591 here.



Earnings Per Job

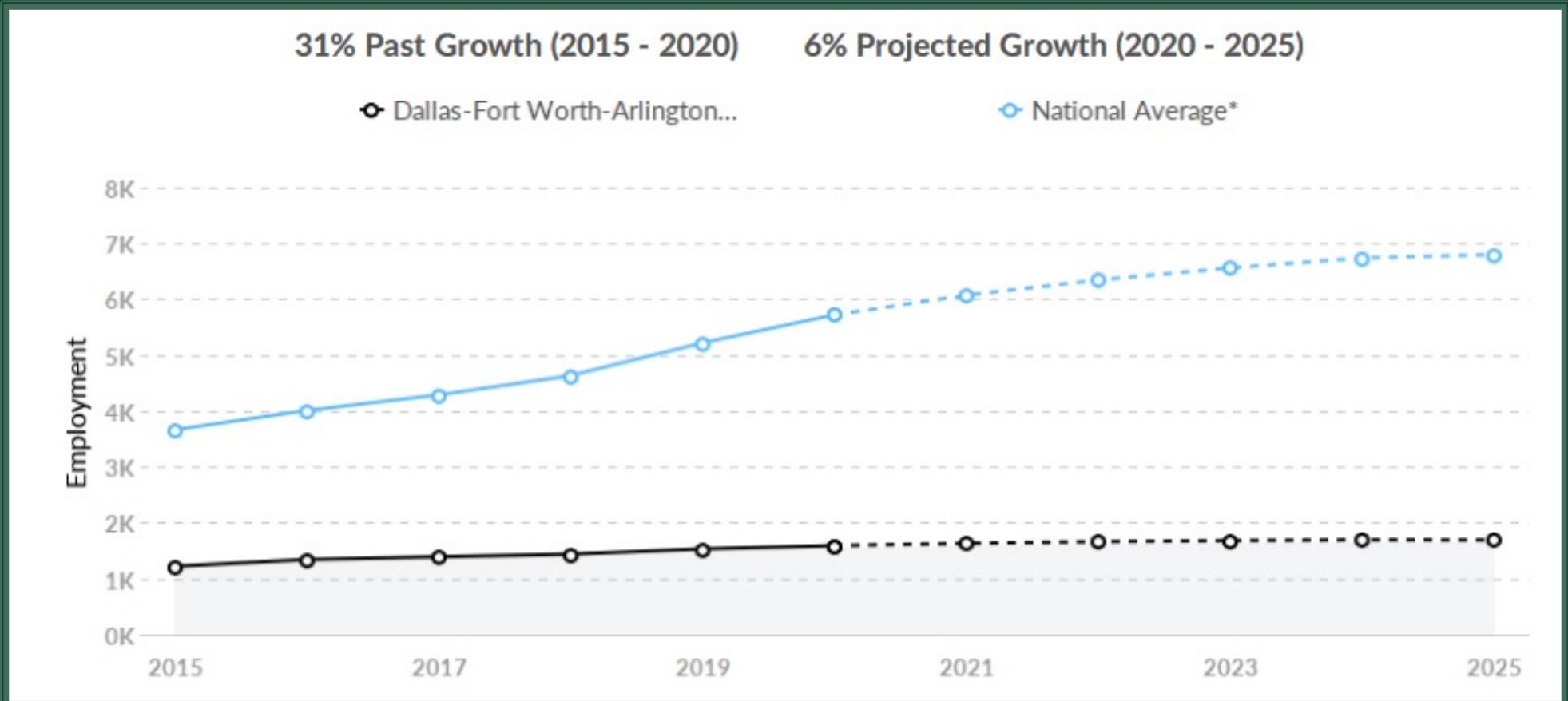
Earnings per job are below the national average. The national average salary for Research and Development in Biotechnology (except Nanobiotechnology) in an area this size is \$238,523, while in Dallas-Fort Worth-Arlington, TX it is \$164,580. Earnings per jobs is the total industry earnings divided by the number of jobs in the industry.



Demand (Job Postings)

Competition from online job postings is low in Dallas-Fort Worth-Arlington, TX. The national average for an area this size is 5\* job postings/mo, while there is 1 here.

## Supply is Lower than the National Average



The national average is calculated by taking the percentage of the total US population employed in this industry and multiplying it by the total metro population. This determines roughly what the employment in the industry should be for the size.

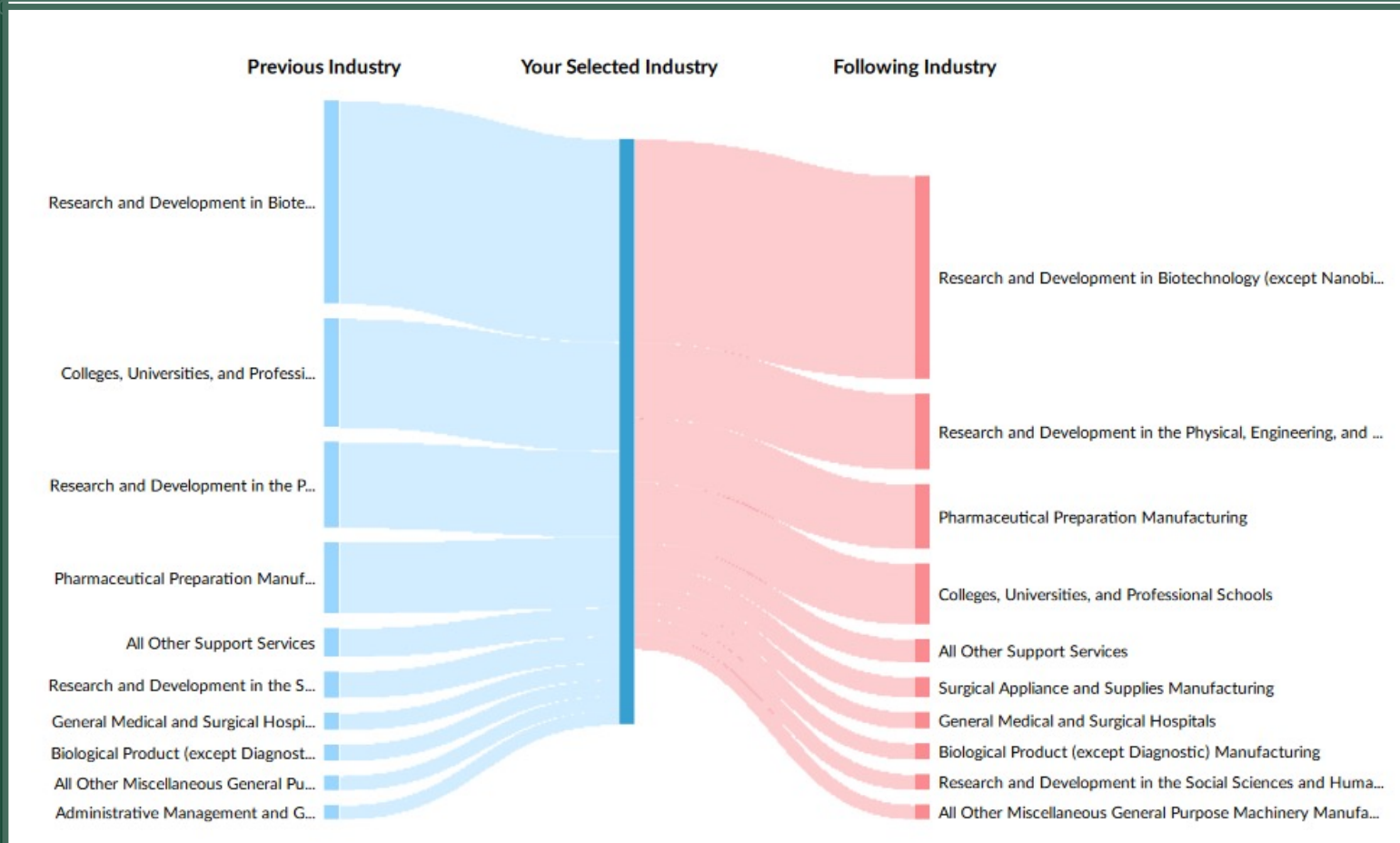
As evidenced by the graph above, DFW is well below the national average and not seeing a significant amount of natural growth in the industry.

## Industry Gain and Drain

The table below analyzes the profiles of current and past people in your selected industry. The left column shows job transitions from other industries to your selected industry. The right column shows job transitions from your selected industry to other industries.

Please note, results are only available at the national level and the 6-digit NAICS level.

The following represents the job transitions of employees in your selected industry in the United States:



## Top Occupations Nationwide in Biotechnology R&D Industry

SOC	Description	Employed in Industry (2021)	Median Hourly Earnings	Typical Entry Level Education
19-1042	Medical Scientists, Except Epidemiologists	17,613	\$43.99	Doctoral or professional degree
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	11,126	\$52.95	Bachelor's degree
19-4021	Biological Technicians	9,652	\$22.28	Bachelor's degree
11-9121	Natural Sciences Managers	9,134	\$66.32	Bachelor's degree
13-1198	Project Management Specialists and Business Operations Specialists, All Other	8,632	\$37.22	Bachelor's degree
19-1021	Biochemists and Biophysicists	6,724	\$45.32	Doctoral or professional degree
11-1021	General and Operations Managers	6,450	\$49.83	Bachelor's degree
17-2141	Mechanical Engineers	5,423	\$43.35	Bachelor's degree
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	4,162	\$55.94	Bachelor's degree
17-2199	Engineers, All Other	4,150	\$49.70	Bachelor's degree

These are the top 10 occupations nationwide for the Biotechnology R&D Industry. While many occupations are biology-focused, many others, such as software developers and project management specialists fall outside this category. It is likely that these other occupations still have some skill or familiarity with the industry.

For the purposes of this exercise, we will focus on the largest occupation, Medical Scientists (SOC 19-1042). The goal will be to identify comparable jobs, evaluate the largest skills, and factor in how difficult it would be to attract external talent.

## Medical Scientists – Compatible Occupations in DFW

O*NET	O*NET Occupation	Median Hourly Earnings	2021 Jobs	Compatibility Index
25-1042.00	<b>Biological Science Teachers, Postsecondary</b>	\$34.25	25,813	90
25-1052.00	<b>Chemistry Teachers, Postsecondary</b>	\$34.25	25,813	92
29-1069.07	<b>Pathologists</b>	\$98.50	7,072	93
29-1051.00	<b>Pharmacists</b>	\$59.08	6,871	90
11-9121.00	<b>Natural Sciences Managers</b>	\$59.35	1,566	91
19-2041.00	<b>Environmental Scientists and Specialists, Including Health</b>	\$35.06	1,007	90
15-2041.01	<b>Biostatisticians</b>	\$43.28	604	90
19-1029.03	<b>Geneticists</b>	\$41.63	436	95
19-1029.02	<b>Molecular and Cellular Biologists</b>	\$41.63	436	91
19-1029.01	<b>Bioinformatics Scientists</b>	\$41.63	436	94
19-1020.01	<b>Biologists</b>	\$41.63	436	90
19-1021.00	<b>Biochemists and Biophysicists</b>	\$37.66	408	91
19-1041.00	<b>Epidemiologists</b>	\$35.52	116	91
19-1013.00	<b>Soil and Plant Scientists</b>	\$36.27	95	90
19-1022.00	<b>Microbiologists</b>	\$30.16	87	92

The above table shows jobs which are roughly compatible with the Medical Scientists occupation. The higher the index the better the match. As evidenced above, there are many workers which possess the general skills or educational background necessary to potentially transition into this role.

## Medical Scientists – Top Five Hard Skills

Skill	No. of Postings in USA w/ Skill – Sept 2020	No. of Postings in USA w/ Skill – Sept 2021	Percent Change %
Biology	8,042	12,360	54%
Pharmaceuticals	7,204	9,508	32%
Clinical Trials	6,305	9,047	43%
Biochemical Assays	4,559	7,938	74%
Oncology	6,068	7,522	24%

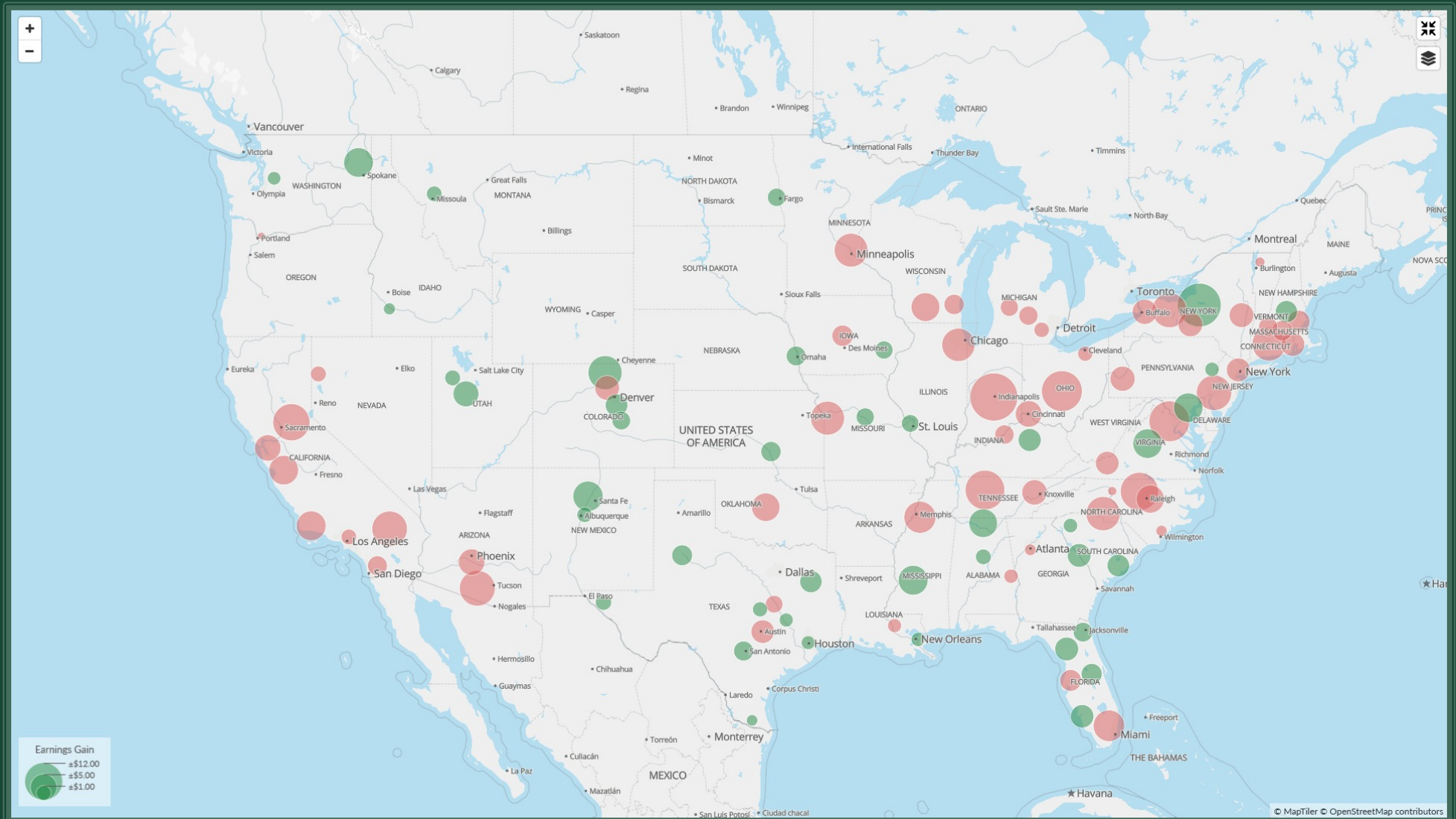


Skill	No. of DFW Profiles w/ Skill	Top Company in DFW	Top Occupation in DFW
Biology	7,171	UT Southwestern	Postsecondary Teacher
Pharmaceuticals	24,759	Alcon Inc	Sales Manager
Clinical Trials	6,186	UT Southwestern	Natural Science Manager
Biochemical Assays	1,108	UT Southwestern	Medical Scientists
Oncology	8,682	US Oncology, Inc	Registered Nurses

**Number of DFW Profiles with one or more of the skills listed above: 40,299 Profiles**



# Medical Scientists – Map of Potential for Talent Attraction



Areas in green indicate that an employee would gain more earnings leaving their MSA to come to DFW. Employees leaving the areas in red would experience a loss in earnings by coming to DFW.

## Medical Scientists – Top Regions to Attract Talent From

MSA Name	Overall Rank	Total Talent	Your Alumni	Graduate Oversupply	Earnings Gain (To Move to DFW)
Syracuse, NY	30	349	1	663	\$16.96
Fort Collins, CO	33	304	4	581	\$9.40
Los Alamos, NM	71	62	2	(15)	\$7.08
Jackson, MS	48	93	1	530	\$6.80
Spokane-Spokane Valley, WA	46	99	2	476	\$6.71
Charlottesville, VA	44	433	1	425	\$6.64
Baltimore-Columbia-Towson, MD	13	1,968	3	2,272	\$6.61
Huntsville, AL	67	181	0	236	\$6.18
Provo-Orem, UT	40	332	1	691	\$4.75
Gainesville, FL	25	223	5	1,637	\$3.83

The MSAs listed above are all ones where there would be an earnings gain for a Medical Scientist to move to DFW. Some regions like Baltimore-Columbia-Towson, MD would be an ideal target for recruiters, as they have an overall larger talent pool coupled with a surplus of graduate students. Identifying these regions is essential addressing any gap between our current supply and the labor demands of a project.

## Medical Scientists – Top Regions Attracting DFW Graduates

MSA Name	Overall Rank	Total Talent	Your Alumni	Graduate Oversupply	Earnings Gain (To Move to DFW)
Houston-The Woodlands-Sugar Land, TX	4	2,611	106	1,724	\$0.81
San Francisco-Oakland-Berkeley, CA	5	6,279	65	1,881	(\$5.03)
Boston-Cambridge-Newton, MA-NH	1	13,723	61	4,756	(\$3.24)
New York-Newark-Jersey City, NY-NJ-PA	2	9,077	43	9,040	(\$3.86)
Austin-Round Rock-Georgetown, TX	12	510	35	1,893	(\$3.72)
Washington-Arlington-Alexandria, DC-VA-MD-WV	8	4,758	33	2,961	(\$14.38)
Los Angeles-Long Beach-Anaheim, CA	3	6,690	29	6,766	(\$1.17)
San Diego-Chula Vista-Carlsbad, CA	9	3,835	26	2,903	(\$2.36)
Atlanta-Sandy Springs-Alpharetta, GA	11	1,775	23	2,280	(\$0.43)
Chicago-Naperville-Elgin, IL-IN-WI	7	4,501	22	4,273	(\$8.91)

The chart above shows which markets are attracting talent away from DFW. In most of these instances, with the exception of Houston, if a worker were to move from their metro to DFW they would all experience a general loss in earnings. While some of this could be offset by reduced costs of living, this does suggest that wages need to stay competitive in order to attract new talent and retain our graduates.

## Questions?

Please contact Cody Gibbs at [Cody.Gibbs@UTDallas.edu](mailto:Cody.Gibbs@UTDallas.edu)  
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