PROGRESS TOWARD ACHIEVING NATIONAL CANCER INSTITUTE (NCI) DESIGNATION

LOUISIANA CANCER RESEARCH CENTER

PERFORMANCE AUDIT SERVICES
ISSUED DECEMBER 13, 2017
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December 13, 2017

The Honorable John A. Alario, Jr.,
President of the Senate
The Honorable Taylor F. Barras,
Speaker of the House of Representatives

Dear Senator Alario and Representative Barras:

This report provides the results of our performance audit on the Louisiana Cancer Research Center’s (LCRC) progress toward achieving a National Cancer Institute designation.

The report contains our findings, conclusions, and recommendations. Appendix A contains LCRC’s response to this report. I hope this report will benefit you in your legislative decision-making process.

We would like to express our appreciation to the management, staff, and Board of Directors of LCRC for their assistance during this audit.

Sincerely,

Daryl G. Purpera, CPA, CFE
Legislative Auditor

DGP/aa

LCRC NCI
Introduction

Act No 41 of the 2002 First Extraordinary Session\(^1\) created the Louisiana Cancer Research Center (LCRC). LCRC’s primary function is to conduct cancer research and education in the diagnosis, detection, and treatment of cancer in its pursuit of achieving National Cancer Institute (NCI)\(^2\) designation. LCRC is a nonprofit organization that brings together four research and medical institutions as consortium partners. These consortium partners include:

- Louisiana State University Health Sciences Center in New Orleans (LSU HSC);
- Tulane University Health Sciences Center (Tulane HSC);
- Xavier University of Louisiana; and
- Ochsner Health System.

LCRC is governed by a Board of Directors (Board) comprised of six members from the consortium partners, two members from state agencies, and four community members.\(^3\) Since its inception in 2002, LCRC has received approximately $144.2 million from state tobacco tax dedications for its Cancer Research Program. In addition, LCRC received $92.4 million in State Capital Outlay funding to build and equip its facility.

Cancer is the leading cause of death related to disease in Louisiana, with 6,909 deaths annually.

Source: Centers for Disease Control and Prevention

<table>
<thead>
<tr>
<th>Category</th>
<th>Revenue ($)</th>
<th>Revenue (%)</th>
</tr>
</thead>
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<tr>
<td>Tobacco Tax – Cancer Research Program</td>
<td>$144,180,550</td>
<td>41.5%</td>
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<tr>
<td>Tobacco Tax – Cessation Program*</td>
<td>98,029,078</td>
<td>28.2%</td>
</tr>
<tr>
<td>State Capital Outlay Funding</td>
<td>92,433,079</td>
<td>26.6%</td>
</tr>
<tr>
<td>Lease Income</td>
<td>5,476,493</td>
<td>1.6%</td>
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<tr>
<td>Other (Fundraising, Interest, etc.)</td>
<td>7,604,619</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$347,723,819</strong></td>
<td><strong>100%</strong></td>
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</table>

\(^*\) R.S. 47:841.1(C)(1) dedicates tobacco tax proceeds for the creation of smoking cessation mass media programs and evidence-based tobacco control programs.

Source: Prepared by legislative auditor’s staff using LCRC CPA reports.

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\(^1\) Louisiana Revised Statute (R.S.) 17:1921
\(^2\) NCI is the federal government’s principal agency for cancer research and training. It is part of the National Institutes of Health (NIH), one of 11 agencies that make up the federal Department of Health and Human Services (HHS).
\(^3\) See Appendix C for more information on Board composition and authority.
Exhibit 1 summarizes all sources of revenue, including revenue for LCRC’s smoking cessation program, from fiscal years 2003 to 2017.

NCI awards its designation to U.S. institutions based on scientific merit. There are currently 69 NCI-designated cancer centers located in 35 states and the District of Columbia. The closest NCI-designated cancer centers to Louisiana include the M.D. Anderson Hospital in Houston, Texas; Harold C. Simmons Comprehensive Cancer Center in Dallas, Texas; and the University of Alabama Medical Center in Birmingham, Alabama. Of the 69 NCI-designated Cancer Centers, 30 have consortium arrangements that combine multiple institutions to pool their resources and integrate their collective scientific talent and knowledge.

Achieving NCI designation would provide many benefits to the state of Louisiana. It would allow LCRC and its consortium partners to compete for additional federal funding available only to NCI-designated cancer centers. NCI designation would also help LCRC’s consortium partners expand their programs, grow their reputations, and improve their abilities to recruit and retain faculty and researchers. Having an NCI-designated cancer center in the state could also provide promising new cancer treatments that are more easily accessible to Louisiana residents, rather than having to travel out of state. Furthermore, an NCI-designated cancer center within the state could focus on the special needs of Louisiana, including the issue of health disparities.

The objective of this audit was:

To evaluate the Louisiana Cancer Research Center’s progress toward achieving NCI designation.

Overall, we found that while LCRC has made some scientific progress over the last 14 years, administrative structure changes are needed to advance LCRC toward achieving NCI designation. The issues we identified and the recommendations we developed to guide LCRC in achieving NCI designation are summarized on the next page and in more detail throughout this report. Appendix A contains LCRC’s response to this report, and Appendix B details our scope and methodology. Appendix C outlines the composition of LCRC’s Board of Directors and its authority. Appendix D provides a summary of requirements for NCI designation. Appendix E shows LCRC’s scientific progress over the period of fiscal years 2003 through 2017. Appendix F provides a list of NCI-Designated Cancer Centers nationwide, listing their location, cancer focus, and year of NCI designation.

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4 See Appendix D for the requirements that a cancer center must meet in order to apply for NCI designation.
5 The Centers for Disease Control and Prevention (CDC) defines health disparities as preventable differences in the burden of disease, injury, violence, or opportunities to achieve optimal health that are experienced by socially disadvantaged populations resulting from multiple factors, including poverty, environmental threats, inadequate access to health care, and educational inequalities.
Objective: To evaluate LCRC’s progress toward achieving NCI designation.

Since 2003, LCRC has received $144.2 million from state tobacco tax proceeds for cancer research and $92.4 million in State Capital Outlay funds to build and equip its facility. LCRC has made some scientific progress such as increasing its funding base and increasing enrollment of patients into cancer trials, as shown in Appendix E. However, changes to LCRC’s administrative structure are needed to achieve NCI designation. Specifically, we found:

- **LCRC’s Board of Directors (Board) has not hired a center director to lead LCRC toward NCI designation.** Although LCRC’s Board has frequently discussed hiring a center director, the Board spent money on research at the individual institutions instead.

- **Although required by law and needed for NCI designation, LCRC’s Board has not adopted a strategic plan. In addition, LCRC has not developed a written agreement that outlines how each institution will contribute to achieving NCI designation.** NCI requires a cancer center applying for NCI designation to provide its mission, vision, and research goals for the next five years and describe how these have been integrated into the research program’s specific goals.

- **The composition of LCRC’s Board and the competing interests of the consortium’s partners may have contributed to LCRC’s slow progression toward NCI designation.** Currently, LSU Health Sciences Center and Tulane Health Sciences Center control LCRC’s Board because they have more seats than the other two consortium partners.

- **LCRC has not held meetings with its External Scientific Advisory Board since 2009 because it has not implemented many of the Board’s previous recommendations.** According to LCRC staff and scientific leadership, there is no reason to bring the Advisory Board back until LCRC has implemented the Board’s previous recommendations.

- **LCRC’s Board has relied on declining and unstable state funding and has not actively pursued other revenue sources, such as fundraising and revenue from clinical activities, which affects its ability to achieve NCI designation.** State funding has declined by 27% since fiscal year 2005, and LCRC anticipates an additional 6% reduction to tobacco tax revenue in fiscal year 2018.

- **LCRC has had to reallocate funds from its cancer research program to help cover the expenses of operating its newly-built facility.** When LCRC’s Board of Directors authorized the construction, it underestimated the future costs associated with operating the facility. As a result, LCRC has reallocated funding from cancer research to cover the facility’s operating expenses.
• While LCRC has increased its combined funding base, none of the consortium partners exceed the minimum funding base requirement in order to compete with other cancer centers seeking NCI designation. NCI uses the funding base requirement as a measurement of a center’s leadership and capacity to conduct competitive cancer research, and just meeting the minimum requirement is not enough because of the intense competition for federal funding from other cancer centers.

These issues are discussed in detail below, along with recommendations to help LCRC progress toward achieving NCI designation.

LCRC’s Board has not hired a center director to lead LCRC toward NCI designation.

A key requirement in achieving NCI designation is the hiring of a center director who is a highly-qualified scientist and administrator and has the experience and expertise to establish a vision for LCRC, advance scientific goals, and manage a complex organization. In a consortium, the center director plays a major role in advancing the integration of the consortium partners (joint research and clinical activities) and has the appropriate authority over the consortium partners’ cancer research and clinical activities as well as LCRC’s discretionary funds (e.g., tobacco tax proceeds, private donations, and clinical revenues).

According to the External Scientific Advisory Board, the Board of Directors needs to consult with NCI to determine what kind of center director arrangement will be accepted, such as whether the director could be an employee of LCRC and have appointments at each consortium institution, or whether another arrangement should be established. In addition, granting the center director authority over all funding, scientific priorities, and allocation of space in LCRC’s facility would require the Board and the consortium partners to relinquish some of their control over these decisions. This means that the role of the Board would have to change from actively managing such decisions to advising the center director.

Although LCRC’s Board has frequently discussed hiring a center director, the Board spent money on research at the individual institutions instead. According to one Board member, the lack of a center director was positive because it forced the scientific leadership from each institution to collaborate. However, according to LCRC’s scientific leadership, LCRC needs a center director to lead LCRC toward NCI designation because none of the scientific leaders have authority over the other consortium partners’ cancer research programs. In addition, the External Scientific Advisory Board also advised LCRC to hire a center director.

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The *External Scientific Advisory Board* consists of scientific leaders from NCI-designated cancer centers nationwide that provides objective evaluation and advice on the direction of LCRC.

**Source:** Prepared by legislative auditor’s staff using information provided by LCRC.

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6 LCRC’s scientific leadership consists of scientific co-directors from LSU HSC and Tulane HSC, and associate directors from Xavier University and Ochsner Health System.
According to the Office of Cancer Centers at NCI, if a center director is hired and the goal of obtaining NCI designation is officially established, it can take five to 10 years or even longer to obtain NCI designation. Even after hiring a center director, it may take LCRC more than five years before one of the consortium institutions can apply for the initial designation, because it takes time to develop a vision, hire more researchers, and document collaboration among consortium partners. For example, the University of Kentucky Markey Cancer Center hired a nationally-recognized physician-scientist as a center director in 2009 but was not able to become NCI-designated until 2013. The University of Kansas Cancer Center hired a nationally-recognized breast cancer researcher and pathologist as a center director in 2004 but didn’t obtain NCI designation until 2012.

**Recommendation 1:** LCRC’s Board should consult with NCI concerning what kind of center director arrangement will be accepted. For example, it should inquire as to whether the center director could be an employee of LCRC and have appointments at each consortium institution, or if another arrangement should be established. LCRC’s Board should grant appropriate authority to the center director upon hiring one.

**Summary of Management’s Response:** LCRC’s Board agrees with this recommendation and states that it has developed an approved job description that specifies sufficient authority for the future director to be afforded the best opportunity for success. See Appendix A for LCRC’s full response.

Although required by law and needed for NCI designation, LCRC’s Board has not adopted a strategic plan.

R.S. 17:1926 requires LCRC’s Board to present a strategic plan to the Joint Legislative Committee on the Budget, the Louisiana Board of Regents, and the Department of Economic Development no later than February 1 of each year. In addition, NCI requires a cancer center applying for NCI designation to provide its mission, vision, and research goals for the next five years and describe how these have been integrated into the research program’s specific goals.

However, LCRC’s Board has not developed a strategic plan. In 2014, the Board paid a total of $70,000 to a consulting firm to develop a strategic plan. A draft was developed in February 2015, but the Board has never adopted it because it was put on hold pending the completion of the facility construction. According to the Board, in lieu of the strategic plan, they annually approved Goals and Objectives for LCRC.

**The Board of Directors must identify within LCRC’s strategic plan which consortium partner will apply for initial NCI designation.** NCI requires that a cancer center initially obtain NCI designation as a stand-alone cancer center. That cancer center can then apply as a consortium during the NCI designation renewal process, which occurs every five years.

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7 Per NCI requirements, only one of LCRC’s consortium partners can apply for initial NCI designation then can seek designation renewal as a consortium five years later.
years. The stand-alone cancer center must perform research and not merely transfer funds to other partners who perform research.

LCRC is a consortium with four partners. While LCRC receives tobacco tax dedications and distributes funds to the consortium’s partners, it does not conduct research itself. Therefore, one of the consortium partners, not LCRC, will have to apply for initial NCI designation. At some point, the Board needs to develop a plan that identifies how LCRC will achieve initial and consortium NCI designations, establish goals and time frames in order to achieve designation, and identify resources and commitments from each consortium partner needed to achieve NCI designation.

**LCRC has not developed a written agreement outlining how each institution will contribute to achieving NCI designation.** Although only one consortium partner will apply for initial NCI designation, the mission of LCRC is to obtain NCI designation for its consortium partners. Therefore, LCRC consortium partners need to have a formal, written agreement in place to ensure the stability and integration of the consortium partnership as required by NCI. The agreement should describe ongoing tangible institutional commitments (such as direct financial support of cancer research, hiring researchers, providing equipment, etc.); a process for resolution of differences among consortium partners; and a common planning and evaluation process in areas such as recruitment, clinical trials, etc. While each consortium partner provides institutional support to their institutions, they have not developed a formal agreement outlining their institutional commitments to LCRC.

**Recommendation 2:** LCRC’s Board should adopt a strategic plan that includes how LCRC will achieve initial and consortium NCI designations, establish time frames for goals, and identify resources and commitments from each consortium institution.

**Summary of Management’s Response:** LCRC’s Board agrees with this recommendation and states that under the direction of the Board, the Chief Administrative Officer has been engaged in the developing of a branding strategy and communication plan for promotion of LCRC’s vision. See Appendix A for LCRC’s full response.

**Recommendation 3:** LCRC’s Board should ensure that consortium partners have a formal written agreement describing ongoing tangible commitments to LCRC, a process for resolution of differences, common planning and evaluation process, etc.

**Summary of Management’s Response:** LCRC’s Board agrees with this recommendation and states that each partner institution makes significant contributions in additional support of their cancer research programs, which are collectively the cancer research programs of the LCRC. See Appendix A for LCRC’s full response.
The composition of LCRC’s Board and the competing interests of the consortium’s partners may have contributed to LCRC’s slow progression toward NCI designation.

Currently, LSU HSC and Tulane HSC each have two seats on LCRC’s Board, while the other two consortium partners only have one seat each. Originally, R.S. 17:1923 established LSU HSC and Tulane HSC as equal partners with alternating chairmanship and vice-chairmanship positions on LCRC’s Board. In 2008 and 2010, LCRC added Xavier University and Ochsner Health System as consortium partners respectively; however, the structure of the Board has not been changed to grant each consortium partner an equal number of seats. According to various LCRC stakeholders, this uneven composition has created a situation where LSU HSC and Tulane HSC have more influence over decision-making of the Board, making it difficult to unite all consortium partners together to ensure strategic collaboration among them, including creating a strategic plan.

In addition, the four consortium partners are also competitors that compete for limited state, federal, and private funds for their institutions. As a result, Board members from the consortium partners face a dual loyalty conflict of interest – to act in the best interest of LCRC or in the best interest of the institutions they represent and work for. For example, the Board decides how much funding will be provided to each consortium partner. Currently, the Board distributes funding to partners based on a fixed percentage that it established instead of making funding contingent on each partner’s scientific progress – similar to NCI requirements. Exhibit 2 summarizes the amount of funding budgeted for each institution by LCRC in fiscal year 2018.

<table>
<thead>
<tr>
<th>Consortium Partner</th>
<th>Amount ($)</th>
<th>Amount (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSU HSC</td>
<td>$1,024,308</td>
<td>41%</td>
</tr>
<tr>
<td>Tulane HSC</td>
<td>1,024,038</td>
<td>41</td>
</tr>
<tr>
<td>Xavier University</td>
<td>463,735</td>
<td>18</td>
</tr>
<tr>
<td>Ochsner</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2,512,081</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**Note:** Ochsner has clinical cancer research, but limited laboratory-based cancer research. Therefore, LCRC does not provide funding for cancer research to Ochsner.

**Source:** Prepared by legislative auditor’s staff using information provided by LCRC.

**Matter for Legislative Consideration 1:** The legislature may wish to consider changing the composition of LCRC’s Board by granting one seat to each consortium partner. This would help ensure that the consortium’s partners operate as equals when deciding key issues.

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8 R.S. 17:1924 (5) (6) gives LCRC’s Board authority to add consortium partners.

9 NCI requires NCI-designated cancer centers to submit progress reports on their grant awards that describe what was accomplished.
**Matter for Legislative Consideration 2:** The legislature may wish to consider eliminating the statutory requirement of alternating the chairmanship and vice-chairmanship positions between LSU HSC and Tulane HSC on LCRC’s Board. This will allow the entire Board to determine which members will serve in these positions based on LCRC’s needs at the time, such as sufficient time to devote to these positions, fundraising ability, expertise, etc.

**LCRC has not held meetings with its External Scientific Advisory Board since 2009 because it has not implemented many of the Board’s previous recommendations.**

One of the requirements for NCI designation is for a cancer center to have a formal standing External Scientific Advisory Board that meets at least once yearly and provides objective evaluation and advice to the center director regarding the direction of the center. In its application, NCI requires the applicant to include a discussion of External Scientific Advisory Board recommendations, actions taken in response to those recommendations, and reasons why recommendations were not implemented. However, LCRC has not met with its External Scientific Advisory Board since 2009 because it has not implemented many of the Advisory Board’s recommendations. According to LCRC staff and scientific leadership, there is no reason to bring the Advisory Board back until LCRC has implemented the Board’s previous recommendations. For example, in 2009 the External Scientific Advisory Board advised LCRC on issues that it needed to address, including hiring a center director and integrating Xavier and Ochsner into LCRC’s consortium. However, LCRC’s Board has not yet hired a center director.

**Recommendation 4:** Once LCRC’s Board starts demonstrating progress toward implementing the External Scientific Advisory Board’s previous recommendations, it should reengage the Advisory Board for guidance toward the NCI designation.

**Summary of Management’s Response:** LCRC’s Board agrees with this recommendation. See Appendix A for LCRC’s full response.

**LCRC’s Board has relied on declining and unstable state funding and has not actively pursued other revenue sources, such as fundraising and revenue from clinical activities, which affects its ability to achieve NCI designation.**

LCRC’s Board relies on declining and unstable state revenues to operate LCRC. Since its inception in 2002, LCRC’s operations have been funded primarily by statutorily-dedicated tobacco tax proceeds as authorized by R.S. 47:841.1(C)(1). As shown in Exhibit 3, from fiscal years 2003 through 2017, LCRC has received a total of $144.2 million in tobacco tax proceeds for its cancer research program and used it to cover its operating and research program expenses. However, state funding has declined by 27% since fiscal year 2005, and LCRC has been using its operating reserves to cover the difference. In addition, because LCRC anticipates
an additional 6% reduction to tobacco tax revenue for fiscal year 2018, it has reduced the amount it gives to institutions for research by 15% and will absorb the rest through decreasing operational services.

In the past, LCRC’s Board identified major gaps in LCRC’s long-term financial viability. The Board concluded that without finding other revenue streams any decrease in tobacco tax proceeds would have a huge impact on LCRC operations. Specifically, LCRC needs funding to recruit researchers, buy equipment, etc. Other NCI-designated cancer centers have more diversified revenue streams. For example, the University of Kansas Cancer Center’s state funding accounted for only 7% of its total funding during the period of 2007-2012, as shown in Exhibit 4.
LCRC’s Board has not conducted clinical activities to generate revenue that could offset declining tobacco tax proceeds. In 2009, LCRC’s Board identified undeveloped joint clinical activities, such as clinical trials and clinical care, to cancer patients as a major gap in LCRC financial viability. However, LCRC has still not addressed this issue and does not receive any revenue from clinical activities, which is essential to becoming a self-supporting institution through clinical revenue from patients and/or insurance companies. However, neither LSU HSC nor Tulane HSC own hospitals; Xavier University does not operate a cancer center; and Ochsner Health System generates clinical revenues to sustain its own operations. In addition, LCRC’s Board has not developed joint clinical activities among the consortium partners. As a result, LCRC does not receive any clinical revenue to reinvest back into its cancer research program.

LCRC’s Board does not actively seek fundraising revenue. Since its inception in 2002, LCRC has generated a total of $2.6 million (or 0.7% of total revenues) from fundraising. Its annual fundraiser Saks Fifth Avenue’s Key to the Cure is the only fundraiser that directly benefits LCRC. Other fundraising events provide funding directly to the consortium’s partners. For example, the Cancer Crusaders annual fundraising events support research at the LSU HSC and Tulane HSC. The External Scientific Advisory Board advised LCRC on multiple occasions that fundraising is essential to the long-term success of a cancer center. According to NCI, fundraising plays an enormous role in funding research in NCI-designated cancer centers nationwide. For example, as shown in Exhibit 4, the University of Kansas Cancer Center raised $40.9 million (or 9%) in private philanthropy from 2007 to 2012, which was crucial in obtaining NCI designation in 2012. However, LCRC’s consortium partners stated that they have to

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**Exhibit 4**
The University of Kansas Cancer Center
Total NCI Investment 2007-2012

<table>
<thead>
<tr>
<th>Funding Sources Actuals</th>
<th>2007-2012</th>
<th>%</th>
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<tr>
<td>Funding from outside agencies (NIH, etc.)</td>
<td>$238,268,100</td>
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<tr>
<td>University</td>
<td>72,073,182</td>
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<tr>
<td>Kansas Bioscience Authority</td>
<td>47,194,678</td>
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</tr>
<tr>
<td>Private philanthropy</td>
<td>40,978,206</td>
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<tr>
<td>State of Kansas support</td>
<td>33,800,000</td>
<td>7</td>
</tr>
<tr>
<td>Johnson County Education &amp; Research Triangle*</td>
<td>25,895,685</td>
<td>5</td>
</tr>
<tr>
<td>The University of Kansas Hospital</td>
<td>12,000,000</td>
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<tr>
<td>Revenue from research services</td>
<td>2,229,001</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Midwest Cancer Alliance</td>
<td>2,100,000</td>
<td>&lt;1</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$474,538,852</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

*The Triangle is a partnership between Johnson County, the University of Kansas, and Kansas State University to create economic stimulus and a higher quality of life through new facilities for research and additional degree opportunities.

Source: Prepared by legislative auditor's staff using information from the University of Kansas website.

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10 Clinical trials are research studies that involve people.
11 LSU HSC clinical trials had been held in Charity Hospital in New Orleans since 1994, but the hospital was privatized in 2013. Currently, LSU has a partnership with Community Oncologists for clinical trials (Mary Bird Perkins Cancer Center, Our Lady of the Lake Cancer Center, Willis-Knighton Medical and Cancer Center, Children’s Hospital, etc.), but the hospitals do not share clinical revenue with LCRC.
12 Tulane Medical Center was acquired by Hospital Corporation of America in 1995.
compete for a limited number of private donors who already provide support to their institutions. Therefore, fundraising for LCRC itself would divert funding away from their institutions.

**Recommendation 5:** LCRC’s Board should develop and support LCRC joint clinical activities and fundraising efforts.

**Summary of Management’s Response:** LCRC’s Board agrees with this recommendation and states that it believes that the lack of revenue support from clinical activities, while a challenge, can be creatively met over time. LCRC also states that it has recently engaged a consultant with deep knowledge of the Louisiana fundraising environment to assist in developing that activity. See Appendix A for LCRC’s full response.

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**LCRC has had to reallocate funds from its cancer research program to help cover the expenses of operating its newly-built facility.**

In 2012, LCRC completed construction of its new 175,000 square-foot facility, which currently houses researchers from LSU HSC, Tulane HSC, and Xavier University. When LCRC’s Board authorized the construction, it underestimated the future costs associated with operating the facility. As a result, LCRC has reallocated funding from cancer research to cover the facility’s operating expenses. From fiscal year 2012 through fiscal year 2017, LCRC spent on average only 33% of tobacco tax proceeds dedicated to its cancer research program on cancer research, as shown in Exhibit 6.

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13 During the 2008 Regular Legislative Session, the legislature authorized $102 million in state capital outlay funds for construction of the 175,000-square-foot facility for LCRC. In 2017, LCRC completed the build out of two floors that will provide additional research and clinical trials space.

14 Ochsner has clinical cancer research, but limited laboratory-based cancer research. Therefore, it has no researchers at LCRC facility.
According to LCRC stakeholders, the construction of the facility was very disruptive to the Board, taking their attention away from progressing toward NCI designation. Furthermore, various stakeholders stated that LCRC did not need a new facility because each consortium partner had space at their own institution, which would have been sufficient for the purpose of NCI designation. According to some Board members we spoke with, LCRC’s facility was built to encourage collaboration among scientists from different cancer focuses and institutions. However, the Board underestimated the cost of operating the facility post-construction. As a result, the Board has had to reallocate funds from research, which would include funding for recruitment of new researchers and a center director. Reallocating money from research is compounded by declining tobacco tax proceeds. In 2014, LCRC started generating lease income from the consortium partners based on their occupancy of the LCRC facility. While LCRC generated a total of $5.5 million in lease income from FY14 to FY17, this revenue is not enough to offset LCRC’s annual expenses to operate the facility.

**Recommendation 6:** LCRC’s Board should look for different funding opportunities to sustain operations of its facility in order to avoid reallocating funding from cancer research.

**Summary of Management’s Response:** LCRC’s Board agrees with this recommendation. See Appendix A for LCRC’s full response.
While LCRC has increased its combined funding base, none of the consortium partners exceed the minimum funding base requirement in order to compete with other cancer centers seeking NCI designation.

NCI requires that an applicant institution have at least $10 million in annual direct costs of peer-reviewed, cancer-related funding. NCI uses the funding base requirement as a measurement of a center’s leadership and capacity to conduct competitive cancer research. While LCRC has increased its combined funding base to $17.9 million, only one consortium partner can apply for initial designation and must meet the minimum requirement of $10 million in funding base. However, just meeting the minimum requirement is not enough to receive NCI designation because of the intense competition for federal funding from other cancer centers. For example, the University of Kentucky Markey Cancer Center has approximately $25.4 million in funding base, while the Dan L. Duncan Comprehensive Cancer Center has approximately $86.0 million in funding base. While LCRC needs to continue increasing its combined funding base, the Board needs to also ensure that at least one of the partners’ funding base exceeds the minimum requirement in order to compete with other cancer centers seeking designation.

In addition, because of Hurricane Katrina in 2005, LCRC consortium partners lost 16 researchers who contributed a total of $22.2 million in funding from fiscal years 2003 to 2006 and, according to these institutions, would have continued contributing scientifically and financially into the future if they stayed. After Hurricane Katrina, LCRC’s consortium partners were only able to recruit junior staff who came without funded federal grants. Because of this, it took time for the consortium’s partners to rebuild their funding base. Since fiscal year 2006, LCRC’s scientific leadership has been able to recover and further grow its funding base. However, according to the scientific leadership, LCRC is at a critical point right now, and without additional revenue to recruit cancer researchers its funding base will decline.

**Recommendation 7:** Once a center director is hired, LCRC’s Board should work with the center director to determine which consortium partner will apply for initial NCI designation and to ensure that this consortium partner exceeds the minimum of $10 million in funding base in order to compete with other cancer centers and receive NCI designation.

**Summary of Management’s Response:** LCRC’s Board disagrees with this recommendation and states that LCRC does not mirror the traditional consortium model and intends on working with NCI to determine the organization model that is optimal for LCRC’s success. See Appendix A for LCRC’s full response.

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15 We did not perform accuracy and completeness testing of funding base information because the source documents required for testing are stored at the consortium partners’ locations. In addition, we assumed that 100% of funding base is cancer related.

16 Funding is used to recruit and support researchers. Established researchers bring in grant funding, which makes them attractive candidates for other institutions. As a result, the institution needs funding to keep their own researchers and recruit new ones.
**LLA Additional Comments:** As stated in the report, NCI requires that a cancer center initially obtain NCI designation as a stand-alone cancer center. According to the Director of the Office of Cancer Centers at NCI, cancer centers cannot apply for the initial designation as a consortium, so LCRC’s partner with the largest funding base should apply for NCI designation first. This partner must meet all requirements as a stand-alone cancer center when applying. That cancer center can then apply as a consortium during the NCI designation renewal process.
Dear Mr. Purpera,

The Board appreciates the opportunity to respond to the recommendations contained in the performance audit report of the Louisiana Cancer Research Center (LCRC). While the LCRC Board concurs with many of the report’s recommendations, there are a few points that we feel need clarification.

As highlighted in the report, cancer is a leading cause of death in the state. Louisiana consistently ranks as one of the highest in the nation in terms of cancer incidence and mortality. There are projected to be over 24,000 new cancer diagnoses this year. That is sixty-six Louisiana residents and their families who are personally affected by the disease every day.

Multiple peer-reviewed studies have shown that patients with access to National Cancer Institute (NCI) designated cancer centers have improved outcomes. The Louisiana Legislature created the Louisiana Cancer Research Center with the vision for improving the health of Louisianans through conducting research and education in pursuit of achieving National Cancer Institute designation. This pursuit has already brought benefit to cancer patients in Louisiana through basic research, bringing new cancer treatments to the state, and increasing access to clinical trials, especially for minority patients and underserved populations.

Since inception, external grants funding to LCRC researchers has increased significantly. Participation in clinical trials has steadily increased. Currently, LCRC’s researchers account for over 80% of Federal cancer research funding to the state and 90% of NCI grants. This represents almost $30 million in cancer-related research investment brought in to the state annually. According to independent economic impact assessments, these Federal funds generate $80 million in economic activity, produce $60 million in local economic growth, and create approximately 400 jobs. These accomplishments have occurred in spite of major impediments to our progress as described below.

In the aftermath of hurricane Katrina several of our most distinguished researchers chose to relocate their research programs outside of the state. The difficulties over the last several years in funding higher education in the state have made it even more difficult to recruit and retain prominent faculty. Following the two back-to-back increases to the state’s tobacco tax, collections under the Tobacco Tax Health Fund, which funds the LCRC, have declined by 28%. LCRC’s cancer research and cessation programs were negatively impacted further by this drastic decline in collections (revenue) because the tax increases and expansions of 2015 and 2016 contribute to the state General Fund which resulted in no allocation to the Tobacco Tax Healthcare Fund. The impact of this decline in revenue has been significant—coming at the same time we are bringing online the recently fully completed research center building.
Leveraging LCRC support, our members make significant contributions toward building a healthier Louisiana. Tulane University has developed an outstanding prostate cancer focus group that includes clinicians, leading clinical trials, and basic researchers in genetics and signaling. LSU Health Sciences Center has formed a statewide clinical trials network Gulf-South – NCI Community Oncology Program (Gulf South – NCORP) that includes LSU-New Orleans, Mary Bird Perkins in Baton Rouge, and LSU – Shreveport. Xavier University’s partnership with LCRC made possible their establishment of an RCMI funded Center for Cancer Research to support research to improve health outcomes for individuals with cancer, especially those from minority populations. Due in large part to joining the LCRC, Xavier University has increased its NIH funding from 10th to 5th highest among historically black colleges and universities. Ochsner was also awarded an NCORP grant to increase accrual of cancer patients and maintain data quality on prevention and cancer control, treatment, and cancer care delivery trials. This leverages Ochsner’s integrated health network and improves availability of clinical trials with special emphasis on women, children, underserved and minority patients, while enhancing training for oncology research staff.

The LCRC is at an inflection point in its history. With the completion of the research center building, recruitment of new leadership, and the finalization of strategic planning, the LCRC is actively preparing for the next phase of its mission. This makes the outside assessment conducted by the Legislative Audit team particularly timely.

Specific discussions of each recommendation are included below:

**Recommendation 1:** LCRC’s Board of Directors should consult with NCI concerning what kind of center director arrangement will be accepted. For example, inquire as to whether the center director could be an employee of LCRC and have appointments at each consortium institution, or if another arrangement should be established. LCRC’s Board of Directors should grant appropriate authority to the center director upon hiring one.

The Board agrees with this recommendation. The LCRC Board has had extensive discussions regarding the recruitment of a single scientific director. They have approved a job description that specifies sufficient authority for the future director to be afforded the best opportunity for success. As has occurred in the past, the Board and LCRC leadership will consult at critical points with NCI staff for guidance.

It should be noted that recruitment of a center director and investment in member cancer centers are not mutually exclusive. In the aftermath of hurricane Katrina, the LCRC’s External Scientific Advisory Board recommended an emphasis be placed on investment in recruitment of scientists (and alternately recruiting and developing junior faculty) to the member Cancer Centers. Despite the impediments noted above, the LCRC has been successful in recruiting new faculty; and has been particularly successful in recruiting promising new junior faculty.

**Recommendation 2:** LCRC’s Board of Directors should adopt a strategic plan that includes how LCRC will achieve initial and consortium NCI designations, establish time frames for goals, and identify resources and commitments from each consortium institution.
The Board agrees with this recommendation. As noted in the audit, since inception as part of its cooperative endeavor agreement with the state, the LCRC has submitted goals & objectives. Though annual, these reflected a multi-year approach to furthering the LCRC’s mission and were accepted by the state as meeting the statutory requirement. As the research center building approached completion and occupancy, the Board has actively engaged in strategic discussions toward finalizing the strategic plan drafted by the consultant.

Though in draft form, the Board did identify specific actionable items and acted upon them accordingly. In 2016 the Board successfully recruited a new Chief Administrative Officer (CAO)—the first such to have extensive experience at an NCI-designated cancer center. Under the direction of the Board, the CAO has been engaged in the development of a branding strategy and communication plan for promotion of the LCRC’s vision.

Recommendation 3: LCRC’s Board of Directors should ensure that consortium partners have a formal written agreement, describing ongoing tangible commitments to LCRC, a process for resolution of differences, common planning and evaluation process, etc.

The Board agrees with this recommendation. It is important to highlight that each partner institution makes significant contributions in additional support of their cancer research programs which are collectively the cancer research programs of the LCRC. Specific contributions include faculty package support, providing startup funding, support for research and/or grant administration, and investments in some highly specialized equipment. Their investment in excess of $10 million annually to the cancer research programs should be fairly acknowledged.

Matters of Legislative Consideration 1 & 2: Composition and chairship of the LCRC Board

The Board welcomes the opportunity to work with legislators to ensure the most productive and beneficial Board composition. Given the consortium structure of the LCRC and the fact that the majority of funding occurs within the partner institutions by way of faculty salary and support, it is critical that representatives of the partner institutions have active roles in leading and guiding the Center and its mission. The Board has expanded on the Board membership originally envisioned in the legislation to include increased public input and oversight of LCRC. The current Board composition includes four very active and engaged community members whose contributions are beneficial.

Recommendation 4: Once LCRC’s Board of Directors starts demonstrating progress toward implementing the External Scientific Advisory Board’s previous recommendations, they should reengage the advisory board for guidance toward NCI designation.

The Board agrees with this recommendation.

Recommendation 5: LCRC’s Board of Directors should develop and support LCRC joint clinical activities and fundraising efforts.
The Board agrees with this recommendation. As noted in the audit report, neither of the LCRC's two largest partners owns a hospital. It is correct that, unlike many NCI cancer centers, the LCRC does not receive revenue support from direct clinical activities. The Board agrees that this is a challenge, but feels it is one that can be creatively met over time. The Board is currently in discussion with partner hospitals to determine if mutually beneficial opportunities can be identified.

This lack of clinical revenue makes other sources of support even more crucial. The Board has previously identified the future role that philanthropy could play in lending support to the LCRC mission. The Board has already approved creation of a development initiative and this fall engaged a consultant with deep knowledge of the Louisiana fundraising environment to assist in developing that activity.

**Recommendation 6:** LCRC's Board of Directors should look for different funding opportunities to sustain operations of its facility in order to avoid reallocating funding away from cancer research.

The Board agrees with this recommendation. See discussion above.

**Recommendation 7:** Once a center director is hired, LCRC's Board of Directors should work with the center director to determine which consortium partner will apply for initial NCI designation and to ensure that this consortium partner exceeds the minimum of $10 million in funding base in order to compete with other cancer centers and receive NCI designation.

The Board respectfully disagrees with this recommendation. The LCRC represents a unique opportunity to help create a new model for a cancer center. The LCRC does not mirror the traditional consortium model and our leadership intends to work closely with leadership at NCI to determine the organizational model that is optimal for our success while at the same time, perhaps, helping to shape the multi-institutional integrated cancer center of the future.

Sincerely,

[Signature]

Sven Davisson
LCRC Chief Administrative Officer

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1 American Cancer Society
2 Families USA
3 United for Medical Research
This report provides the results of our performance audit of the Louisiana Cancer Research Center (LCRC). We conducted this performance audit under the provisions of Title 24 of the Louisiana Revised Statutes of 1950, as amended. This audit covered the time period July 1, 2016, through June 30, 2017, although our analysis included historical information going back to 2003. The audit objective was:

**To evaluate the Louisiana Cancer Research Center’s progress toward achieving NCI designation.**

We conducted this performance audit in accordance with generally accepted Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. To answer our objective, we reviewed internal controls relevant to the audit objective and performed the following audit steps:

- Researched and reviewed relevant state statutes and regulations relating to LCRC.
- Researched requirements for NCI designation.
- Researched board governance best practices.
- Interviewed LCRC staff, selected Board of Directors (Board) members, consortium partners, scientific leadership, and other stakeholders.
- Analyzed funding sources of LCRC and consortium partners and faculty loss due to Hurricane Katrina.
- Reviewed External Scientific Advisory Board reports to LCRC.
- Observed LCRC’s Board meetings and Scientific Leadership meetings.
- Discussed and provided the results of our analysis to LCRC administration.
- Had a conference call with the Office of Cancer Centers at NCI.
R.S. 17:1923 established the composition of the LCRC’s Board of Directors (Board), which consists of the following:

- Senior vice president for health sciences of Tulane University Health Sciences Center;
- Senior Louisiana State University Health Sciences Center representative appointed by the President of the Louisiana State University System;
- Member appointed by the Senior Vice President for Health Sciences of Tulane University Health Sciences Center;
- Member appointed by the President of the Louisiana State University System from the Louisiana State University Health Sciences Center;
- Secretary of the Department of Economic Development, or his designee;
- Chairman of the Louisiana Board of Regents, or his designee; and
- Other persons as may be appointed by the unanimous consent of the Board.

The Senior Vice President for Health Sciences of Tulane University Health Sciences Center and the senior Louisiana State University Health Sciences Center representative appointed by the President of the Louisiana State University System shall serve as the chairperson and vice chairperson on an alternating annual basis according to the bylaws.

The governance board of the center shall have authority\(^\text{17}\) to:

- Sue and be sued, including the right to recover all debts owing to the center, and to retain legal counsel therefor.
- Actively seek and accept donations, bequests, and other forms of financial assistance for educational and research purposes from any public or private person or agency and comply with rules and regulations governing grants from the federal government or any other person or agency which are not in contravention of the constitution and laws of the state.

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\(^{17}\) R.S. 17:1924
• Purchase and maintain equipment and make improvements to facilities necessary for the use of the center.

• Approve the appointment of such administrative officers and other personnel as the governance board deems necessary and designate their titles. The compensation of all officers and employees shall be fixed by the governance board and the officers so appointed shall serve at the pleasure of the governance board.

• Adopt, amend, and repeal rules and regulations necessary or proper for the business of the center.

• Enter into contracts and agreements with other agencies and entities with respect to cooperative enterprises and undertakings relating to or associated with the purposes of the center.

• Perform such other functions as are necessary or incidental to the supervision and management of the center.

• Employ the proceeds of all donations, grants, and requests made to the center so as to affect the purposes of and in accordance with the terms and conditions of such donations, grants, and requests.
APPENDIX D: NCI DESIGNATION REQUIREMENTS

The National Cancer Institute (NCI) at the National Institutes of Health awards P30 Cancer Center Support Grants (CCSG) and accompanying NCI designation to certain U.S. institutions for them to become cancer centers based on scientific merit. To receive the award, institutions must demonstrate strength in six essential characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Commitment</td>
<td>The NCI requires institutional commitments of parent institutions to the Cancer Center, such as:</td>
</tr>
<tr>
<td></td>
<td>• An organizational status for the Cancer Center that is comparable or superior to that of departments.</td>
</tr>
<tr>
<td></td>
<td>• Funding from the institution and consortium partners.</td>
</tr>
<tr>
<td></td>
<td>• Research, clinical, and administrative space and positions.</td>
</tr>
<tr>
<td></td>
<td>• A commitment to facilitate clinicians to participate in clinical trials.</td>
</tr>
<tr>
<td></td>
<td>• A commitment to facilitate research by clinician scientists.</td>
</tr>
<tr>
<td></td>
<td>• Etc.</td>
</tr>
<tr>
<td></td>
<td>The stability of a consortium is demonstrated via provisions of formal written agreements, the record of tangible contributions of each consortium institution to the Center.</td>
</tr>
<tr>
<td>Center Director</td>
<td>NCI requires that the center director be a highly-qualified scientist and administrator with leadership experience, expertise, and authority appropriate for establishing a vision for the center, advancing scientific goals, and managing a complex organization. In a consortium, NCI expects that the director will play a major role in integration of the partner institutions into cancer research and other activities of the Cancer Center.</td>
</tr>
<tr>
<td>Transdisciplinary Collaboration and Coordination</td>
<td>NCI requires the Cancer Center to promote innovative and interactive research opportunities through the formation of formal scientific research programs comprised of groups of researchers who share common scientific interests and goals and participate in competitively funded research and in publications and other interactive activities. Inter- and intra-programmatic collaborations are important, as well as collaborations with other NCI-designated Cancer Centers and other external partners.</td>
</tr>
<tr>
<td>Cancer Focus</td>
<td>NCI requires a Center to demonstrate a clearly-defined scientific cancer focus, which is done in part through formal scientific research programs. Each program must have at least seven (7) fully cancer-focused, peer-reviewed funded research projects equivalent to an NIH R01* from a minimum of five (5) different, independent researchers to be eligible.</td>
</tr>
<tr>
<td>Organizational Capability</td>
<td>NCI requires a Center and its consortium partners to have an organizational structure that effectively promotes collaborative scientific interactions both within the Center and with consortium partner institutions, other NCI-designated Cancer Centers, and other external partners. The center should have standing External Advisory Committee appropriately balanced for basic laboratory; clinical; prevention, cancer control, and population science; and administrative expertise. The committee should meet at least once yearly and provide objective evaluation and advice in a consensus report to the Center Director.</td>
</tr>
<tr>
<td>Physical Space</td>
<td>NCI requires a Center to describe the physical facilities dedicated to cancer research, shared resources, and administration and indicate how the Center facilitates access to shared resources and other services.</td>
</tr>
</tbody>
</table>

*R01 grant is the most common type of research project grant. For the purposes of the NCI designation, R01-equivalence equals a project funding for three (3) years minimum with at least $125,000 direct costs per year.  
Source: Prepared by legislative auditor’s staff using the Funding Opportunity Announcement PAR-17-095 for P30 Cancer Center Support Grants to support NCI-designated Cancer Centers.
In addition, an applicant institution must have a funding base of at least $10 million in annual direct costs of peer-reviewed, cancer-related funding. However, a cancer center can only apply as a consortium of institutions if one of the partner institutions has been NCI-designated previously. For consortium NCI-designated cancer centers, the funding base of the center will be the sum of the funding bases of all participating institutions.

Several basic principles apply to consortium arrangements in the context of the NCI designation:

1. **Each consortium partner must contribute continuing tangible commitments to the Center.** These may include direct financial support of cancer research, protected cancer research time to support programmatic goals, etc.

2. **Each member institution adds strategic value** to the research mission of the cancer center, i.e., holds a portfolio of peer-reviewed cancer-related research grants that contribute to the center's scientific goals.

3. At the time of application for a CCSG, **the partnering institutions already function as one cohesive cancer center**. Their research must be integrated (as evidenced by a history of collaboration, including joint grants and publications), and mechanisms must exist for including geographically dispersed members in programmatic activities.

4. **A formal, written agreement is in place** to ensure the stability and integration of the consortium partnership. NCI specifies what should be included in the agreement. For example, some of the requirements that should be included:
   - A process for resolution of differences at the highest levels of institutional leadership.
   - Ongoing, tangible institutional commitments to the cancer center from all consortium partners.
   - Reasonable access to shared resources for all members.
   - Center director oversight of CCSG-supported shared resources, including those located in partner institutions.
## APPENDIX E: LCRC SCIENTIFIC PROGRESS

<table>
<thead>
<tr>
<th>FY</th>
<th>Number of publications</th>
<th>Number of joint publications</th>
<th>Number of awarded qualifying grants</th>
<th>Amount of awarded qualifying grants</th>
<th>Number of patients placed in therapeutic cancer trials</th>
<th>Number of patients placed in cancer prevention trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY03</td>
<td>N/A</td>
<td>N/A</td>
<td>43</td>
<td>$5,637,306</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY04</td>
<td>N/A</td>
<td>N/A</td>
<td>52</td>
<td>$10,548,029</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY05</td>
<td>N/A</td>
<td>N/A</td>
<td>61</td>
<td>$12,197,525</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY06</td>
<td>N/A</td>
<td>N/A</td>
<td>58</td>
<td>$14,117,762</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY07</td>
<td>157</td>
<td>15</td>
<td>57</td>
<td>$16,061,315</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY08</td>
<td>227</td>
<td>8</td>
<td>75</td>
<td>$17,203,562</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY09</td>
<td>249</td>
<td>39</td>
<td>87</td>
<td>$21,865,542</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY10</td>
<td>343</td>
<td>167</td>
<td>74</td>
<td>$22,898,607</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY11</td>
<td>337</td>
<td>153</td>
<td>72</td>
<td>$23,537,276</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY12</td>
<td>317</td>
<td>81</td>
<td>70</td>
<td>$23,644,068</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>FY13</td>
<td>309</td>
<td>79</td>
<td>48</td>
<td>$25,063,315</td>
<td>42</td>
<td>431</td>
</tr>
<tr>
<td>FY14</td>
<td>285</td>
<td>14</td>
<td>58</td>
<td>$22,136,031</td>
<td>93</td>
<td>519</td>
</tr>
<tr>
<td>FY15</td>
<td>345</td>
<td>9</td>
<td>48</td>
<td>$23,860,468</td>
<td>156</td>
<td>1,125</td>
</tr>
<tr>
<td>FY16</td>
<td>369</td>
<td>28</td>
<td>35</td>
<td>$15,239,103</td>
<td>200</td>
<td>308</td>
</tr>
<tr>
<td>FY17</td>
<td>360</td>
<td>19</td>
<td>35</td>
<td>$17,936,737</td>
<td>340</td>
<td>232</td>
</tr>
</tbody>
</table>

**Notes:**
1. We assumed that 100% of awarded qualifying grants are cancer related.
2. We did not perform accuracy and completeness testing of awarded qualifying grants because the source documents required for this testing are stored at consortium partners locations.
3. Amount of qualifying grants also includes one-time post-Katrina and American Recovery and Reinvestment Act funding.

**Source:** Prepared by the legislative auditor’s staff using information provided by LCRC.
NCI-designated Cancer Centers are institutions dedicated to research in the development of more effective approaches to prevention, diagnosis, and treatment of cancer. There are three types of NCI-designated Cancer Centers:

- **Cancer centers** - conduct some combination of laboratory, clinical, or population-based research.
- **Comprehensive cancer centers** - conduct research in each of three major areas: laboratory, clinical, and population-based research, as well as substantial transdisciplinary research that bridges these scientific areas.
- **Basic laboratory cancer centers** - conduct only laboratory research and do not treat patients.

There are 13 Cancer Centers, 49 Comprehensive Cancer Centers, and 7 Basic Laboratory Cancer Centers.

<table>
<thead>
<tr>
<th>No.</th>
<th>Cancer Center Type</th>
<th>NCI-Designated Cancer Center Name</th>
<th>Institution Name</th>
<th>Location</th>
<th>Cancer Focus*</th>
<th>Designation Year</th>
<th>Designation Year for Comprehensive Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Comprehensive</td>
<td>Abramson Cancer Center</td>
<td>University of Pennsylvania</td>
<td>Philadelphia, PA</td>
<td>Breast Cancer, Cancer Control, Cancer Therapeutics, Hematologic Malignancies, Immunobiology, Melanoma and Cutaneous Malignancies, Pediatric Oncology, Radiobiology and Imaging, Tobacco and Environmental Carcinogenesis, Tumor Biology, Tumor Virology</td>
<td>N/A</td>
<td>1974</td>
</tr>
<tr>
<td>No.</td>
<td>Cancer Center Type</td>
<td>NCI-Designated Cancer Center Name</td>
<td>Institution Name</td>
<td>Location</td>
<td>Cancer Focus*</td>
<td>Designation Year</td>
<td>Designation Year for Comprehensive Status</td>
</tr>
<tr>
<td>-----</td>
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<td>---------------</td>
<td>------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>2</td>
<td>Center</td>
<td>Albert Einstein Cancer Center</td>
<td>Albert Einstein College of Medicine</td>
<td>Bronx, NY</td>
<td>Biology of Colon Cancer Cancer Epidemiology Experimental Therapeutics Stem Cells, Differentiation and Cancer Tumor Microenvironment &amp; Metastasis</td>
<td>1972</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>Comprehensive</td>
<td>Alvin J. Siteman Cancer Center</td>
<td>Washington University School of Medicine and Barnes-Jewish Hospital</td>
<td>St. Louis, MO</td>
<td>Breast Cancer Research Cell-to-Cell Communications in Cancer Hematopoietic Development &amp; Malignancy Oncologic Imaging Prevention &amp; Control Solid Tumor Therapeutics Tumor Immunology</td>
<td>2001</td>
<td>2004</td>
</tr>
<tr>
<td>4</td>
<td>Comprehensive</td>
<td>Arizona Cancer Center</td>
<td>University of Arizona</td>
<td>Tucson, AZ</td>
<td>Cancer Imaging Cancer Prevention and Control Therapeutic Development</td>
<td>1978</td>
<td>1990</td>
</tr>
<tr>
<td>5</td>
<td>Comprehensive</td>
<td>Barbara Ann Karmanos Cancer Institute</td>
<td>Wayne State University School of Medicine</td>
<td>Detroit, MI</td>
<td>Molecular Imaging and Diagnostics Molecular Therapeutics Population Studies and Disparities Research Tumor and Microenvironment</td>
<td>N/A</td>
<td>1978</td>
</tr>
<tr>
<td>6</td>
<td>Center</td>
<td>Cancer Therapy &amp; Research Center</td>
<td>University of Texas Health Science Center at San Antonio</td>
<td>San Antonio, TX</td>
<td>Cancer Development &amp; Progression Cancer Prevention &amp; Population Science Experimental &amp; Developmental Therapeutics</td>
<td>1993</td>
<td>N/A</td>
</tr>
<tr>
<td>No.</td>
<td>Cancer Center Type</td>
<td>NCI-Designated Cancer Center Name</td>
<td>Institution Name</td>
<td>Location</td>
<td>Cancer Focus*</td>
<td>Designation Year</td>
<td>Designation Year for Comprehensive Status</td>
</tr>
<tr>
<td>-----</td>
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<td>----------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>------------------------------------------</td>
</tr>
</tbody>
</table>
| 7   | Comprehensive     | Case Comprehensive Cancer Center | Case Western Reserve University | Cleveland, OH | Basic Sciences  
Breast Cancer  
Cancer Genetics  
Cancer Imaging  
Cancer Prevention, Control & Population Research  
Developmental Therapeutics  
GU Malignancies  
Hematopoietic Disorders | 1987 | 1998 |
| 8   | Comprehensive     | Chao Family Comprehensive Cancer Center | University of California, Irvine | Orange, CA | Cancer Prevention & Prognosis  
Chemical & Structural Biology  
| 9   | Comprehensive     | City of Hope Comprehensive Cancer Center | Beckman Research Institute | Duarte, CA | Cancer Control & Population Sciences  
Cancer Immunotherapeutics  
Developmental Cancer Therapeutics  
Hematologic Malignancies  
Molecular Oncology | 1981 | 1998 |
| 10  | Basic             | Cold Spring Harbor Laboratory Cancer Center | Cold Spring Harbor Laboratory Cancer Center | Cold Spring Harbor, NY | Cancer Genetics  
Gene Regulation & Cell Proliferation  
Signal Transduction | 1987 | N/A |
| 11  | Comprehensive     | Dan L Duncan Comprehensive Cancer Center | Baylor College of Medicine | Houston, TX | Breast Cancer  
Cancer Biology  
Cancer Cell & Gene Therapy  
Cancer Prevention & Population Sciences  
Nuclear Receptor  
Pediatric Cancer  
Viral & Molecular Oncogenesis | 2007 | 2015 |
<table>
<thead>
<tr>
<th>No.</th>
<th>Cancer Center Type</th>
<th>NCI-Designated Cancer Center Name</th>
<th>Institution Name</th>
<th>Location</th>
<th>Cancer Focus*</th>
<th>Designation Year</th>
<th>Designation Year for Comprehensive Status</th>
</tr>
</thead>
</table>
| 12  | Comprehensive      | Dana-Farber / Harvard Cancer Center | Dana-Farber Cancer Institute | Boston, MA | Biostatistics and Computational Biology Program  
Breast Cancer Program  
Cancer Cell Biology Program  
Cancer Epidemiology Program  
Cancer Genetics Program  
Cancer Immunology Program  
Cancer Risk & Disparities Program  
Cutaneous Oncology & Melanoma Program  
Gastrointestinal Malignancies Program  
Gynecologic Cancers Program  
Kidney Cancer Program  
Leukemia Program  
Lung Cancer Program  
Lymphoma & Myeloma Program  
Neuro-Oncology Program  
Outcomes Research Program  
Prostate Cancer Program  
Translational Pharmacology & Early Therapeutic Trials Program | N/A              | 1973                          |
| 13  | Basic              | David H. Koch Institute for Integrative Cancer Research at MIT | Massachusetts Institute of Technology | Cambridge, MA | Cancer Biology  
Cell and Systems Biology  
Engineering Science & Technology  
Molecular Genetics & Immunology | 1974              | N/A                          |
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<th>Cancer Center Type</th>
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<td>14</td>
<td>Comprehensive</td>
<td>Duke Cancer Institute</td>
<td>Duke University Medical Center</td>
<td>Durham, NC</td>
<td>Cancer Control &amp; Population Sciences&lt;br&gt;Cancer Genetics &amp; Genomics&lt;br&gt;Developmental Therapeutics&lt;br&gt;Hematologic Malignancies &amp; Cellular Therapies&lt;br&gt;Neuro-Oncology&lt;br&gt;Radiation Oncology &amp; Imaging&lt;br&gt;Solid Tumor Therapeutics&lt;br&gt;Tumor Biology&lt;br&gt;Women's Cancer</td>
<td>N/A</td>
<td>1972</td>
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<td>15</td>
<td>Comprehensive</td>
<td>Fox Chase Cancer Center</td>
<td>Fox Chase Cancer Center</td>
<td>Philadelphia, PA</td>
<td>Cancer Biology&lt;br&gt;Cancer Prevention &amp; Control&lt;br&gt;Developmental Therapeutics&lt;br&gt;Immune Cell Development &amp; Host Defense</td>
<td>N/A</td>
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<td>16</td>
<td>Center</td>
<td>Fred &amp; Pamela Buffett Cancer Center</td>
<td>University of Nebraska Medical Center</td>
<td>Omaha, NE</td>
<td>Cancer Genes &amp; Molecular Regulations&lt;br&gt;Gastrointestinal Cancer Program&lt;br&gt;Molecular Biochemical Etiology Program</td>
<td>1999</td>
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<td>Comprehensive</td>
<td>Fred Hutchinson / University of Washington Cancer Consortium</td>
<td>Fred Hutchinson Cancer Research Center</td>
<td>Seattle, WA</td>
<td>Biostatistics and Computational Biology&lt;br&gt;Cancer Basic Biology&lt;br&gt;Cancer Epidemiology, Prevention &amp; Control&lt;br&gt;GI Cancer&lt;br&gt;Global Oncology&lt;br&gt;Hematologic Malignancies&lt;br&gt;Immunology &amp; Vaccine Development&lt;br&gt;Prostate Cancer&lt;br&gt;Women's Cancer</td>
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<td>Comprehensive</td>
<td>Georgetown Lombardi Comprehensive Cancer Center</td>
<td>Georgetown University Medical Center</td>
<td>Washington, DC</td>
<td>Breast Cancer Cancer Prevention &amp; Control Experimental Therapeutics Molecular Oncology</td>
<td>1974</td>
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<td>19</td>
<td>Comprehensive</td>
<td>Harold C. Simmons Comprehensive Cancer Center</td>
<td>University of Texas Southwestern Medical Center</td>
<td>Dallas, TX</td>
<td>Cancer Cell Networks Chemistry &amp; Cancer Development &amp; Cancer Molecular Therapeutics</td>
<td>2010</td>
<td>2015</td>
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<td>20</td>
<td>Comprehensive</td>
<td>Herbert Irving Comprehensive Cancer Center</td>
<td>College of Physicians &amp; Surgeons Columbia University</td>
<td>New York, NY</td>
<td>Breast Cancer Cancer Epidemiology Cancer Genetics &amp; Epigenetics Cancer Regulatory Networks Lymphoid Development &amp; Malignancy Neuro-Oncology Prevention, Control &amp; Disparities Prostate Cancer</td>
<td>1972</td>
<td>1979</td>
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<td>21</td>
<td>Comprehensive</td>
<td>Holden Comprehensive Cancer Center</td>
<td>University of Iowa</td>
<td>Iowa City, IA</td>
<td>Cancer Epidemiology Cancer Genomics &amp; Cell Growth Cancer Immunology &amp; Immunotherapy Cancer Signaling &amp; Experimental Therapeutics Free Radical Cancer Biology Tumor Imaging</td>
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<td>22</td>
<td>Center</td>
<td>Hollings Cancer Center</td>
<td>Medical University of South Carolina</td>
<td>Charleston, SC</td>
<td>Cancer Control Cancer Genes &amp; Molecular Regulation Cancer Immunology Developmental Cancer Therapeutics</td>
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<td>23</td>
<td>Comprehensive</td>
<td>Huntsman Cancer Institute</td>
<td>University of Utah</td>
<td>Salt Lake City, UT</td>
<td>Cancer Control &amp; Population Sciences Cell Response &amp; Regulation Experimental Therapeutics Nuclear Control of Cell Growth &amp; Differentiation</td>
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<td>Center</td>
<td>Indiana University Melvin &amp; Bren Simon Cancer Center</td>
<td>Indiana University Melvin &amp; Bren Simon Cancer Center</td>
<td>Indianapolis, IN</td>
<td>Breast cancer &lt;br&gt; Cancer Prevention &amp; Control &lt;br&gt; Experimental &amp; Development &lt;br&gt; Therapeutics &lt;br&gt; Hematopoiesis, Microenvironment &amp; Immunology &lt;br&gt; Tumor Microenvironment &amp; Metastases</td>
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<td>25</td>
<td>Basic</td>
<td>Jackson Laboratory Cancer Center</td>
<td>The Jackson Laboratory Cancer Center</td>
<td>Bar Harbor, ME</td>
<td>Genetic Models for Precision Cancer Medicine</td>
<td>1983</td>
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<td>Comprehensive</td>
<td>Jonsson Comprehensive Cancer Center</td>
<td>University of California at Los Angeles</td>
<td>Los Angeles, CA</td>
<td>Cancer and Stem Cell Biology &lt;br&gt; Cancer Molecular Imaging &lt;br&gt; Cancer Nanotechnology &lt;br&gt; Gene Regulation &lt;br&gt; Healthy &amp; At-Risk Populations &lt;br&gt; Patients &amp; Survivors &lt;br&gt; Signal Transduction &amp; Therapeutics &lt;br&gt; Tumor Immunology</td>
<td>N/A</td>
<td>1976</td>
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<td>27</td>
<td>Center</td>
<td>Laura and Isaac Perlmutter Cancer Center at NYU Langone</td>
<td>New York University Langone Medical Center</td>
<td>New York, NY</td>
<td>Breast Cancer &lt;br&gt; Cancer Immunology &lt;br&gt; Environmental &amp; Molecular Carcinogenesis &lt;br&gt; Epidemiology &amp; Cancer Control &lt;br&gt; Genitourinary Cancers &lt;br&gt; Growth Control &lt;br&gt; Melanoma &lt;br&gt; Stem Cell Biology</td>
<td>1975</td>
<td>N/A</td>
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<td>28</td>
<td>Center</td>
<td>Markey Cancer Center</td>
<td>University of Kentucky</td>
<td>Lexington, KY</td>
<td>Cancer Cell Biology &amp; Signaling &lt;br&gt; Cancer Prevention &amp; Control &lt;br&gt; Drug Discovery, Delivery &amp; Translational Therapeutics &lt;br&gt; Redox Injury &amp; Repair</td>
<td>2013</td>
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<td>29</td>
<td>Comprehensive</td>
<td>Masonic Cancer Center</td>
<td>University of Minnesota</td>
<td>Minneapolis, MN</td>
<td>Carcinogenesis &amp; Chemoprevention Cell Signaling Genetic Mechanisms of Cancer Immunology Prevention &amp; Etiology Transplant Biology &amp; Therapy Tumor Microenvironment</td>
<td>N/A</td>
<td>1998</td>
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<td>30</td>
<td>Center</td>
<td>Massey Cancer Center</td>
<td>Virginia Commonwealth University</td>
<td>Richmond, VA</td>
<td>Cancer Cell Signaling Cancer Molecular Genetics Cancer Prevention &amp; Control Developmental Therapeutics Radiation Biology &amp; Oncology</td>
<td>1975</td>
<td>N/A</td>
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<td>31</td>
<td>Comprehensive</td>
<td>Mayo Clinic Cancer Center</td>
<td>Mayo Clinic</td>
<td>Rochester, MN</td>
<td>Cancer Immunology &amp; Immunotherapy Cancer Prevention &amp; Control Cell Biology Developmental Therapeutics Gastrointestinal Cancer Gene &amp; Virus Therapy Genetic Epidemiology &amp; Risk Assessment Hematologic Malignancies Neuro-oncology Women’s Cancer</td>
<td>N/A</td>
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<td>32</td>
<td>Comprehensive</td>
<td>MD Anderson Cancer Center</td>
<td>University of Texas</td>
<td>Houston, TX</td>
<td>Behavioral &amp; Health Disparities Research Brain Cancer Breast Cancer Cancer Genetics &amp; Epigenetics Cell Biology &amp; Signal Transduction Clinical Cancer Prevention Epidemiology Gastrointestinal Cancers Genitourinary Cancer Gynecological Cancers Head &amp; Neck Cancer Hematological Malignancies Immunology Lung Cancer Melanoma Metastasis Research Radiation Oncology, Physics &amp; Biology Stem Cell Transplantation &amp; Cellular Therapy Targeted Therapy</td>
<td>N/A</td>
<td>1971</td>
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<td>Comprehensive</td>
<td>Memorial Sloan-Kettering Cancer Center</td>
<td>Memorial Sloan Kettering Cancer Center</td>
<td>New York, NY</td>
<td>Clinical Research Developmental &amp; Stem Cell Biology Experimental Therapeutics Genomic Integrity Imaging &amp; Radiation Sciences Immunology &amp; Transplantation Molecular Structure Regulation of Cell Behavior Survivorship, Outcomes &amp; Risk</td>
<td>N/A</td>
<td>1971</td>
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<td>34</td>
<td>Comprehensive</td>
<td>Moffitt Cancer Center</td>
<td>Moffitt Cancer Center</td>
<td>Tampa, FL</td>
<td>Cancer Biology &amp; Evolution Cancer Epidemiology Chemical Biology &amp; Molecular Medicine Health Outcomes &amp; Behavior Immunology</td>
<td>1998</td>
<td>2001</td>
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<td>35</td>
<td>Comprehensive</td>
<td>Moores Comprehensive Cancer Center</td>
<td>University of California, San Diego</td>
<td>La Jolla, CA</td>
<td>Cancer Biology &amp; Signaling Cancer Genomes &amp; Networks Cancer Prevention Hematologic Malignancies Reducing Cancer Disparities Solid Tumors &amp; Therapeutics</td>
<td>1978</td>
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<td>Comprehensive</td>
<td>Norris Cotton Cancer Center</td>
<td>Dartmouth-Hitchcock Medical Center</td>
<td>Lebanon, NH</td>
<td>Cancer Control Cancer Epidemiology &amp; Chemoprevention Cancer Imaging &amp; Radiobiology Cancer Mechanisms Immunology &amp; Cancer Immunotherapy Molecular Therapeutics</td>
<td>1978</td>
<td>1990</td>
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<td>37</td>
<td>Comprehensive</td>
<td>Ohio State University Comprehensive Cancer Center</td>
<td>The Ohio State University</td>
<td>Columbus, OH</td>
<td>Cancer Control Experimental Therapeutics Innate Immunity Molecular Biology &amp; Cancer Genetics Molecular Carcinogenesis &amp; Chemoprevention Viral Oncogenesis</td>
<td>N/A</td>
<td>1976</td>
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<td>38</td>
<td>Comprehensive</td>
<td>OHSU Knight Cancer Institute</td>
<td>Oregon Health &amp; Science University</td>
<td>Portland, OR</td>
<td>Cancer Biology Cancer Prevention &amp; Control Hematologic Malignancies Solid Tumors</td>
<td>1997</td>
<td>2017</td>
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<td>39</td>
<td>Basic</td>
<td>Purdue University Center for Cancer Research</td>
<td>Purdue University Center for Cancer Research</td>
<td>West Lafayette, IN</td>
<td>Cell Identity &amp; Signaling Chemical &amp; Structural Biology Drug Delivery &amp; Molecular Sensing Medicinal Chemistry</td>
<td>1978</td>
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| 40  | Comprehensive      | Robert H. Lurie Comprehensive Cancer Center | Northwestern University | Chicago, IL  | Cancer & Physical Sciences  
Cancer Cell Biology  
Cancer Control & Survivorship  
Cancer Prevention  
Hematologic Malignancies  
Signal Transduction in Cancer  
Translational Research in Solid Tumors  
Tumor Invasion, Metastasis & Angiogenesis  
Women’s Cancer | N/A | 1997 |
| 41  | Comprehensive      | Roswell Park Cancer Institute    | Roswell Park Cancer Institute | Buffalo, NY | Cell Stress and Biophysical Therapies  
Experimental Therapeutics  
Genetics  
Genitourinary Cancers  
Population Sciences  
Tumor Immunology & Immunotherapy | N/A | 1974 |
| 42  | Comprehensive      | Rutgers Cancer Institute of New Jersey | Rutgers Biomedical and Health Sciences | New Brunswick, NJ | Cancer Pharmacology & Preclinical Therapeutics  
Cancer Prevention & Control  
Carcinogenesis & Chemoprevention  
Cell Death & Survival Signaling  
Clinical Investigations  
Genomic Instability & Tumor Progression | 1997 | 2002 |
| 43  | Basic              | Salk Institute Cancer Center     | Salk Institute | La Jolla, CA | Growth Control & Genomic Stability  
Metabolism & Cancer Mouse Models & Cancer Stem Cells | 1973 | N/A |
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<td>Basic</td>
<td>Sanford Burnham Prebys Medical Discovery Institute</td>
<td>Sanford Burnham Prebys Medical Discovery Institute</td>
<td>La Jolla, CA</td>
<td>Cell Death &amp; Survival Networks Tumor Initiation &amp; Maintenance Tumor Microenvironment &amp; Metastasis</td>
<td>1981</td>
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<td>Center</td>
<td>Sidney Kimmel Cancer Center at Thomas Jefferson University</td>
<td>Thomas Jefferson University</td>
<td>Philadelphia, PA</td>
<td>Biology of Breast Cancer Biology of Prostate Cancer Cancer Cell Biology &amp; Signaling Gastrointestinal Cancer Molecular Biology &amp; Genetics</td>
<td>1995</td>
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<td>Comprehensive</td>
<td>Sidney Kimmel Comprehensive Cancer Center</td>
<td>Johns Hopkins University</td>
<td>Baltimore, MD</td>
<td>Brain Cancer Breast Cancer Cancer Biology Cancer Immunology Cancer Molecular &amp; Functional Imaging Cancer Prevention &amp; Control Chemical Therapeutics Gastrointestinal Cancer Hematologic Malignancies &amp; BMT Prostate Cancer Upper Aerodigestive Cancer Viral Oncology</td>
<td>N/A</td>
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<td>Comprehensive</td>
<td>St. Jude Children's Research Hospital</td>
<td>St. Jude Children's Research Hospital</td>
<td>Memphis, TN</td>
<td>Cancer Genetics, Biochemistry, &amp; Cell Biology Cancer Prevention &amp; Control Developmental Biology &amp; Solid Tumor Hematological Malignancies Neurobiology &amp; Brain Tumor</td>
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<td>Stanford Cancer Institute</td>
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<td>Stanford, CA</td>
<td>Cancer Biology Cancer Epidemiology Cancer Imaging &amp; Early Dection Cancer Prevention &amp; Control Cancer Stem Cells Immunotherpay of Cancer Lymphoma Radiation Biology Translational Oncology Program @Stanford</td>
<td>2007</td>
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<td>Center</td>
<td>Tisch Cancer Institute</td>
<td>Icahn School of Medicine at Mount Sinai</td>
<td>New York, NY</td>
<td>Cancer Immunology Program Cancer Mechanisms Research Program Liver Cancer Research Program Cancer Prevention &amp; Control Research Program</td>
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<td>UAB Comprehensive Cancer Center</td>
<td>University of Alabama at Birmingham</td>
<td>Birmingham, AL</td>
<td>Cancer Cell Biology Cancer Chemoprevention Cancer Control &amp; Population Science Experimental Therapeutics Inflammation, Immunology &amp; Immunotherapeutics Neuro-Oncology</td>
<td>N/A</td>
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<td>UC Davis Comprehensive Cancer Center</td>
<td>University of California, Davis</td>
<td>Sacramento, CA</td>
<td>Biomedical Technology Cancer Therapeutics Comparative Oncology Molecular Oncology Population Sciences &amp; Health Disparities Prostate Cancer</td>
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<td>UCSF Helen Diller Family Comprehensive Cancer Center</td>
<td>University of California, San Francisco</td>
<td>San Francisco, CA</td>
<td>Breast Oncology  Cancer Control  Cancer Genetics  Cancer, Immunity, &amp; the Microenvironment  Developmental Therapeutics  Hematopoietic Malignancies  Neurologic Oncology  Pediatric Malignancies  Prostate Cancer  Tobacco Control</td>
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<td>UNC Lineberger Comprehensive Cancer Center</td>
<td>University of North Carolina Chapel Hill</td>
<td>Chapel Hill, NC</td>
<td>Breast Cancer  Cancer Cell Biology  Cancer Epidemiology  Cancer Genetics  Cancer Prevention &amp; Control  Clinical Research  Immunology  Molecular Therapeutics  Virology</td>
<td>1975</td>
<td>1990</td>
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<td>54</td>
<td>Comprehensive</td>
<td>University of Chicago Comprehensive Cancer Center</td>
<td>University of Chicago Comprehensive Cancer Center</td>
<td>Chicago, IL</td>
<td>Advanced Imaging  Cancer Prevention &amp; Control  Hematopoiesis &amp; Hematological Malignancies  Immunology &amp; Cancer  Molecular Mechanisms of Cancer  Pharmacogenomics &amp; Experimental Therapeutics</td>
<td>1973</td>
<td>2008</td>
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<td>Comprehensive</td>
<td>University of Colorado Cancer Center</td>
<td>University of Colorado Cancer Center</td>
<td>Aurora, CO</td>
<td>Cancer Cell Biology  Cancer Prevention &amp; Control  Developmental Therapeutics  Hormone Related Malignancies  Lung Head &amp; Neck Cancers  Molecular Oncology</td>
<td>1988</td>
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| 56  | Center            | University of Hawaii Cancer Center | University of Hawaii at Manoa | Honolulu, HI  | Cancer Biology  
Cancer Epidemiology  
Cancer Prevention & Control                                                | 1996             | N/A                                                       |
| 57  | Center            | University of Kansas Cancer Center | University of Kansas | Kansas City, KS | Cancer Biology  
Cancer Control & Population Health  
Cancer Prevention  
Drug Discovery, Delivery & Experimental Therapeutics                             | 2012             | N/A                                                       |
| 58  | Comprehensive     | University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center | University of Maryland | Baltimore, MD | Experimental Therapeutics  
Hormone Responsive Cancers  
Molecular & Structural Biology  
Tumor Immunology & Immunotherapy  
Viral Oncology                                                 | 2008             | 2016                                                      |
| 59  | Comprehensive     | University of Michigan Comprehensive Cancer Center | University of Michigan | Ann Arbor, MI | Biomedical Prevention  
Breast Oncology  
Cancer Cell Biology  
Cancer Genetics  
Experimental Therapeutics  
Gastrointestinal Oncology  
Head & Neck Oncology  
Hematologic Malignancies/BMT  
Molecular Imaging  
Prostate Oncology  
Radiation Sciences  
Socio-Behavioral  
Tumor Immunology & Host Response                           | 1988             | 1991                                                      |
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<td>60</td>
<td>Comprehensive</td>
<td>University of New Mexico Cancer Research &amp; Treatment Center</td>
<td>University of New Mexico, Albuquerque</td>
<td>Albuquerque, NM</td>
<td>Cancer Control &amp; Disparities, Cancer Genetics, Epigenetics &amp; Genomics, Cancer Therapeutics: Technology, Discovery &amp; Targeted Delivery, Translational Cancer Cell Biology &amp; Signaling</td>
<td>2005</td>
<td>2015</td>
</tr>
<tr>
<td>61</td>
<td>Comprehensive</td>
<td>University of Wisconsin Carbone Cancer Center</td>
<td>University of Wisconsin Carbone Cancer Center</td>
<td>Madison, WI</td>
<td>Cancer Control, Cancer Genetics, Cell Signaling, Chemoprevention, Experimental Therapeutics, Human Cancer Virology, Imaging &amp; Radiation Sciences, Tumor Microenvironment</td>
<td>N/A</td>
<td>1973</td>
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<tr>
<td>62</td>
<td>Comprehensive</td>
<td>UPMC Hillman Cancer Center</td>
<td>UPMC Hillman Cancer Center</td>
<td>Pittsburgh, PA</td>
<td>Biobehavioral Medicine in Oncology Program, Brain Tumor Program, Cancer Epidemiology, Prevention &amp; Control Program, Cancer Immunology Program, Cancer Virology Program, Head &amp; Neck Cancer Program, Lung Cancer Program, Melanoma Program, Molecular &amp; Cellular Cancer Biology Program, Molecular Therapeutics &amp; Drug Discovery Program, Prostate Cancer Program</td>
<td>N/A</td>
<td>1990</td>
</tr>
<tr>
<td>No.</td>
<td>Cancer Center Type</td>
<td>NCI-Designated Cancer Center Name</td>
<td>Institution Name</td>
<td>Location</td>
<td>Cancer Focus*</td>
<td>Designation Year</td>
<td>Designation Year for Comprehensive Status</td>
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</tbody>
</table>
| 63  | Comprehensive     | USC Norris Comprehensive Cancer Center | University of Southern California | Los Angeles, CA | Cancer Control Research  
Cancer Epidemiology  
Epigenetics & Regulation  
Gastrointestinal Cancers  
Molecular Genetics  
Translational & Clinical Sciences  
Tumor Microenvironment | N/A             | 1973                        |
| 64  | Center            | UVA Cancer Center | University of Virginia | Charlottesville, VA | Cancer Cell Signaling Program  
Chemical & Structural Biology  
Program  
Immunology/Immunotherapy Program  
Molecular Genetics & Epigenetics Program  
Women’s Oncology Program | 1987 | N/A                        |
| 65  | Comprehensive     | Vanderbilt-Ingram Cancer Center | Vanderbilt University | Nashville, TN | Breast Cancer  
Cancer Epidemiology  
Cancer Health Outcomes & Control  
Gastrointestinal Cancer  
Genome Maintenance  
Host-Tumor Interactions  
Signal Transduction & Chemical Biology  
Translational Research & Interventional Oncology | 1995 | 2001                        |
| 66  | Comprehensive     | Wake Forest Comprehensive Cancer Center | Wake Forest University Health Sciences | Winston-Salem, NC | Cancer Prevention & Control  
Cell Growth & Survival  
Cellular Damage & Defense  
Clinical Research | 1972 | 1990                        |
| 67  | Comprehensive     | Winship Cancer Institute of Emory University | Winship Cancer Institute of Emory University | Atlanta, GA | Cancer Genetics & Epigenetics  
Cancer Cell Biology  
Discovery & Developmental Therapeutics  
Cancer Prevention & Control | 2009 | 2017                        |
<table>
<thead>
<tr>
<th>No.</th>
<th>Cancer Center Type</th>
<th>NCI-Designated Cancer Center Name</th>
<th>Institution Name</th>
<th>Location</th>
<th>Cancer Focus*</th>
<th>Designation Year</th>
<th>Designation Year for Comprehensive Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>Basic</td>
<td>Wistar Institute Cancer Center</td>
<td>The Wistar Institute Cancer Center</td>
<td>Philadelphia, PA</td>
<td>Gene Expression &amp; Regulation Molecular &amp; Cellular Oncogenesis Tumor Microenvironment &amp; Metastasis</td>
<td>1972</td>
<td>N/A</td>
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<tr>
<td>69</td>
<td>Comprehensive</td>
<td>Yale Cancer Center</td>
<td>Yale University School of Medicine</td>
<td>New Haven, CT</td>
<td>Cancer Genetics &amp; Genomics Cancer Immunology Cancer Prevention &amp; Control Developmental Therapeutics Molecular Virology Signal Transduction</td>
<td>N/A</td>
<td>1974</td>
</tr>
</tbody>
</table>

*Reported in 2014.

**Note:** Some cancer centers at first achieve NCI-designated cancer center status, and then they achieve comprehensive status. However, other cancer centers received comprehensive status from the beginning.

**Source:** Prepared by legislative auditor’s staff using information from National Cancer Institute and the Tisch Cancer Institute.