



**Genome Québec**  
The Future has Begun



Financial Report

05\_06

## Highlights 2005-2006 Le Soleil

## EN ÉVIDENCE Génome Québec reçoit et donne

Lors du congrès *Bio 2006* de Chicago, le plus gros du genre en biotechnologies, **Génome Québec** a coup sur coup récolté et distribué des fonds importants pour la recherche au Québec.

L'organisme présidé par Paul L'Archevêque a d'abord reçu 50,4 M\$ du gouvernement du Québec pour soutenir la recherche en génomique. M. L'Archevêque a souligné que cet argent servirait de levier pour développer ce secteur de pointe.

D'ailleurs, dès le lendemain, on annonçait que plus de 5 M\$ étaient réinvestis avec Merck Frost Canada, qui injecte au total 15 M\$ de son côté, pour maintenir son Centre de génétique fongique qui verra même ses activités augmenter. On travaille à y mettre au point des traitements contre des infections potentiellement graves causées par des champignons.

Cette nouvelle intervention de Génome Québec va évidemment contribuer à confirmer le leadership de Montréal dans ce domaine stratégique qu'est la R-D en santé. ■ R.V.

## Highlights 2005-2006 Les Affaires

# LES LAURÉATS DE QUÉBEC

HOMMAGE À DES  
GENS D'EXCEPTION  
DE LA RÉGION

## John MacKay et Jean Bousquet

Chercheurs pour le défi

Chaque semaine, un jury formé de représentants des rédactions du SOLEIL, de la radio et de la télévision de Radio-Canada à Québec nomme un lauréat afin de souligner une réalisation exceptionnelle ou une contribution significative à la vie ou au rayonnement de Québec. Rencontrez le lauréat de la semaine dans LE SOLEIL le dimanche, à la radio de Radio-Canada le lundi matin et à la télévision dans le téléjournal de fin d'après-midi. Vous connaissez une personne qui mériterait d'être nommée lauréat? Écrivez-nous à [redaction@lesoleil.com](mailto:redaction@lesoleil.com).

PIERRE ASSELIN

[PAsselin@lesoleil.com](mailto:PAsselin@lesoleil.com)

■ Jean Bousquet et John MacKay sont à la tête d'un des plus importants projets de recherche en foresterie au Canada. Ils viennent d'obtenir 11 millions \$ pour percer les secrets qui se cachent dans les gènes de l'épinette blanche et s'en servir pour développer des arbres de meilleure qualité.

Cette somme représente le budget de la deuxième phase du projet Arborea. Dans un domaine où les projets de recherche sont nombreux,

d'un arbre qui est essentiel pour l'industrie forestière québécoise. Il s'en plante plus de 70 millions chaque année dans la province.

Le seul arbre dont on connaît la séquence complète d'ADN est le peuplier. L'épinette contient un peu moins de gènes que le peuplier, mais son génome est en réalité beaucoup plus

gros. Chercher un gène dans le génome de l'épinette, c'est comme chercher une lile dans le Pacifique, explique Jean Bousquet.

Ils ont répertorié jusqu'ici à peu près la moitié de ses 30 000 gènes, mais il ne s'agit

pas de juste les trouver, il faut surtout découvrir ce qu'ils font, explique John MacKay. « D'ici trois à quatre ans, dit-il, on devrait arriver avec des réponses précises. »

### ► Fiche de présentation

- Lauréats:** John MacKay et Jean Bousquet
- Catégorie:** recherche
- Occasion:** Ils viennent d'obtenir 11 millions \$ pour percer les secrets des gènes de l'épinette blanche

# Financial Activity Report

## at March 31, 2006

For the business year ended on March 31, 2006, Génome Québec is announcing a 54% increase of its total project portfolio, from \$220 M in 2004-2005 to \$339 M in 2005-2006. It has been the most profitable year in terms of the number of projects, as the organization's portfolio has increased from 22 to 29 large research projects, in addition to the McGill University and Génome Québec Innovation Centre platforms.

Throughout the year, the investments in these research projects and the platforms have totalled \$58.3 M. Pursuant to our mission, 96.1% of the sums were invested in genomic research while respecting the contractual agreements signed by Génome Québec and its main partners. Out of this amount, administrative expenses totalled \$2.4M, which represent 3.9 % of the entire year's investments.

Competition III added a new application to our portfolio, namely pharmacogenomics, which is an extremely promising sector for the competitive strength of Québec. This investment alone amounts to a record of \$18 M over three years. This new initiative allows Génome Québec to confirm once again its desire to perform a leading role in the entire life sciences sector in Québec.

Our funding sources have diversified, as the pool of our funding partners has expanded to include academic, government and private sources.

To conclude, we wish to emphasize that we are aware of the value of the money provided by our partners and therefore, we are working very hard to make it profitable. We are proud to state that up to now, the investments received from Quebec Government have already generated a leverage effect of 1:2. Needless to say, we hope to improve this performance in the next few years.



**Lise Aubin**

Vice-President, Finance and Investments



**Paul L'Archevêque**  
President and CEO

## AUDITORS' REPORT TO THE DIRECTORS

We have audited the statement of financial position of Genome Quebec as at March 31, 2006 and the statements of operations and changes in net assets and cash flows for the year then ended. These financial statements are the responsibility of the Corporation's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Corporation as at March 31, 2006 and the results of its operations and its cash flows for the year then ended in accordance with Canadian generally accepted accounting principles.

*KPMG LLP*

Chartered Accountants

Montréal, Canada

June 2, 2006

## GÉNOME QUÉBEC

Financial Statements

Year ended March 31, 2006

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# GÉNOME QUÉBEC

Statement of Financial Position  
March 31, 2006, with comparative figures for 2005

|   | 2006          | 2005          |
|---|---------------|---------------|
| <b>Assets</b>                                       |               |               |
| Current assets:                                     |               |               |
| Cash and cash equivalents (note 2)                  | \$ 7,569,069  | \$ 11,654,513 |
| Short-term investments (note 3)                     | 6,257,825     | 1,742,525     |
| Accounts receivable and work in progress (note 4)   | 1,779,102     | 967,071       |
| Advances to genomic research projects               | 133,355       | 8,834,804     |
| Inventories   | 1,481,166     | 2,731,075     |
| Prepaid expenses                                    | 169,002       | 187,932       |
|   | 17,389,519    | 26,117,920    |
| Long-term investments (note 5)                      | 545,490       | 2,550,965     |
| Long-term investments in private companies (note 6) | -             | 816,375       |
| Capital assets (note 7)                             | 1,503,917     | 3,524,552     |
|   | \$ 19,438,926 | \$ 33,009,812 |

## Liabilities and Net Assets

|   |               |               |
|---|---------------|---------------|
| Current liabilities:                              |               |               |
| Accounts payable and accrued liabilities (note 8) | \$ 4,339,183  | \$ 3,250,840  |
| Deferred contributions:                           |               |               |
| Future expenses (note 9)                          | 13,595,826    | 26,234,420    |
| Capital assets (note 10)                          | 1,503,917     | 3,524,552     |
|   | 15,099,743    | 29,758,972    |
| Unrestricted net assets                           | -             | -             |
| Commitments (note 13)                             |               |               |
|   | \$ 19,438,926 | \$ 33,009,812 |

See accompanying notes to financial statements.

On behalf of the Board:



, Paul L'Archevêque, Administrator



, Jean-Marc Proulx, Administrator

# GÉNOME QUÉBEC

Statement of Operations and Changes in Net Assets  
Year ended March 31, 2006, with comparative figures for 2005

|  | 2006              | 2005              |
|--|-------------------|-------------------|
| Revenues:  |                   |                   |
| Amortization of deferred contributions related to expenses (note 9)        | \$ 47,314,903     | \$ 46,127,061     |
| Amortization of deferred contributions related to capital assets (note 10) | 3,443,099         | 4,104,050         |
| Revenues from technology platforms   | 9,919,509         | 9,337,930         |
|  | <u>60,677,511</u> | <u>59,569,041</u> |
| Expenses:  |                   |                   |
| Genomic research projects  | 41,584,948        | 43,582,648        |
| Technology platforms operational cost                                      | 10,864,659        | 7,639,306         |
| Innovation Centre operational cost   | 2,408,308         | 2,307,232         |
| General and administrative   | 2,376,497         | 1,935,805         |
| Depreciation of capital assets   | 3,443,099         | 4,104,050         |
|  | <u>60,677,511</u> | <u>59,569,041</u> |
| Excess of revenues over expenses, being net assets, end of year            | <u>\$ -</u>       | <u>\$ -</u>       |

See accompanying notes to financial statements.

# GÉNOME QUÉBEC

## Statement of Cash Flows

Year ended March 31, 2006, with comparative figures for 2005

|   | 2006         | 2005          |
|---|--------------|---------------|
| Cash flows from operating activities:   |              |               |
| Excess of revenues over expenses  | \$ -         | \$ -          |
| Adjustments for:  |              |               |
| Depreciation of capital assets  | 3,443,099    | 4,104,050     |
| Amortization of deferred contributions related to expenses (note 9)                 | (47,314,903) | (46,127,061)  |
| Amortization of deferred contributions related to capital assets (note 10)          | (3,443,099)  | (4,104,050)   |
| Operating losses of the subsidiary and the company subject to significant influence | 1,589,348    | 3,455,349     |
|   | (45,725,555) | (42,671,712)  |
| Contributions received and investment income  | 36,096,745   | 51,759,409    |
| Change in assets and liabilities:   |              |               |
| Accounts receivable   | (350,387)    | 391,702       |
| Advances to genomic research projects   | 8,701,449    | (5,303,883)   |
| Inventories   | 790,293      | (1,819,019)   |
| Prepaid expenses  | 18,930       | 46,521        |
| Accounts payable and accrued liabilities  | 1,088,343    | (137,989)     |
|   | 10,248,628   | (6,822,668)   |
|   | 619,818      | 2,265,029     |
| Cash flows from investing activities:   |              |               |
| Change in short-term investments  | (4,515,300)  | (1,742,525)   |
| Purchase of capital assets  | (1,422,464)  | (1,412,975)   |
| Acquisition of long-term investments in private companies                           | (772,973)    | (3,329,832)   |
| Net disposal (acquisition) of long-term investment                                  | 2,005,475    | (2,550,965)   |
|   | (4,705,262)  | (9,036,297)   |
| Net decrease in cash and cash equivalents   | (4,085,444)  | (6,771,268)   |
| Cash and cash equivalents, beginning of year  | 11,654,513   | 18,425,781    |
| Cash and cash equivalents, end of year  | \$ 7,569,069 | \$ 11,654,513 |

Supplemental cash flow information (note 11)

See accompanying notes to financial statements.

# GÉNOME QUÉBEC

Notes to Financial Statements  
Year ended March 31, 2006

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Genome Quebec was incorporated on June 29, 2000 under Section II of the Canada Corporations Act. Genome Quebec is a not-for-profit organization and has the following objectives:

- a) to develop and maintain in the province of Quebec a coordinated approach and an integrated strategy in the fields of genomic research (including the health, agriculture, environment, forestry and fisheries fields) by bringing together the intervening parties from industry, governments, universities, research centres and laboratories, as well as any other person or organization interested in advancing the goals of the Corporation;
- b) to create, operate and support an infrastructure network in genomics giving Quebec researchers access to a high technology expertise;
- c) to ensure that researchers have access to the necessary equipment and installations to undertake research and development projects in genomics, and to allow for the training of researchers and technologists;
- d) to raise the awareness of the population to the necessity of research in genomics, to the usefulness and consequences of the outcome from this research, to ensure an ethical environment for the researchers and to contribute to public awareness regarding the stakes involved in genomics research.

## 1. Significant accounting policies:

- a) Cash and cash equivalents:  
Cash and cash equivalents consist of cash as well as all highly liquid short-term investments which have a maturity of less than three months from the date of acquisition.
- b) Investments:  
Short-term investments, redeemable at any time, are recorded at the lower of cost and market value. Long-term investments are recorded at cost less a provision for permanent impairment, if any. Any discount or premium arising on purchase of bonds is amortized using the straight-line method of the remaining term.
- c) Work in progress:  
Work in progress is recorded at the pro rata billing value of the work completed.
- d) Inventories:  
Inventories are represented by supplies which will be utilized by the technology platforms. The supplies are recorded at the lower of cost and replacement cost. The cost is determined using the first in, first out method.
- e) Advances and charges related to genomic research projects:  
The advances represent the excess of the contributions to the research projects, including work performed by the technology platforms, over the claims received which are recognized in the statement of operations.
- f) Revenue recognition:  
The Corporation follows the deferral method of accounting for contributions which include mainly funding from Genome Canada and the ministère du Développement économique, de l'Innovation et de l'Exportation du Québec. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.  
  
Externally restricted contributions and related investment income are recognized as revenue in the year in which the related expenses are incurred. Restricted contributions related to the purchase of capital assets are deferred and amortized to revenues using the same methods and rates of the related capital assets.  
  
Revenues from technology platforms are represented by sequencing, genotyping, biochip, proteomics and pharmacogenomics services. Revenues are recognized on the basis of the services rendered.
- g) Long-term investments in private companies:  
Long-term investments are accounted for by using the equity method.

# GÉNOME QUÉBEC

Notes to Financial Statements (continued)  
Year ended March 31, 2006

## 1. Significant accounting policies (continued):

### h) Capital assets:

Capital assets are stated at cost. Depreciation is provided for using the following methods, period and annual rates:

| Asset                  | Method                              | Period/rate             |
|------------------------|-------------------------------------|-------------------------|
| Leasehold improvements | Straight-line                       | Remaining lease term    |
| Furniture and fixture  | Declining balance                   | 20%                     |
| Equipment              | Declining balance and straight-line | 30% and term of project |
| Computers and software | Declining balance                   | 30%                     |

### i) Use of estimates:

The preparation of financial statements in conformity with generally accepted accounting principles requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities and the reported amounts of revenues and expenses. Significant areas requiring the use of management's estimates relate to the determination of the useful life and the estimated residual value of the capital assets along with the recoverability of long-term investments. Accordingly, actual results could differ from those estimates.

## 2. Cash and cash equivalents:

|   | 2006         | 2005          |
|---|--------------|---------------|
| Cash  | \$ 7,569,069 | \$ 7,680,073  |
| Banker's acceptance, bearing interest at a rate of 2.56%, | -            | 3,974,440     |
|   | \$ 7,569,069 | \$ 11,654,513 |

## 3. Short-term investments:

|  | 2006         |              | 2005         |              |
|--|--------------|--------------|--------------|--------------|
|  | Cost         | Fair value   | Cost         | Fair value   |
| Debentures of corporations bearing interest at a rate varying between 3.47% and 3.59%, maturing between November and February 2007 | \$ 1,246,725 | \$ 1,247,563 | \$ 755,325   | \$ 752,625   |
| Bonds, federal agency, bearing interest at a rate of 3.56%, maturing in January 2007   | 249,850      | 248,601      | -            | -            |
| Bonds, provincial governments, bearing interest at a rate varying between 3.15% and 3.28%, maturing in September 2006              | 4,761,250    | 4,750,225    | -            | -            |
| Banker's acceptance, bearing interest at a rate of 2.65%, maturing in April 2005   | -            | -            | 987,200      | 998,969      |
|  | \$ 6,257,825 | \$ 6,246,389 | \$ 1,742,525 | \$ 1,751,594 |

Certain debentures and bonds from provincial governments are based on CDOR, a floating interest rate which represents an average rate of eight Canadian banks' acceptance rates.

# GÉNOME QUÉBEC

Notes to Financial Statements (continued)  
Year ended March 31, 2006

## 4. Accounts receivable and work in progress:

|                             | 2006 |           | 2005 |         |
|-----------------------------|------|-----------|------|---------|
| Clients                     | \$   | 1,271,415 | \$   | 869,842 |
| Purchase return             |      | 459,616   |      | -       |
| Work in progress            |      | 33,540    |      | 84,726  |
| Accrued interest receivable |      | 14,531    |      | 12,503  |
|                             | \$   | 1,779,102 | \$   | 967,071 |

## 5. Long-term investments:

|                             | 2006       |            | 2005         |              |
|-----------------------------|------------|------------|--------------|--------------|
|                             | Cost       | Fair value | Cost         | Fair value   |
| Debentures of corporations  | \$ 545,490 | \$ 542,135 | \$ 1,042,740 | \$ 1,046,450 |
| Provincial government bonds | -          | -          | 1,258,375    | 1,255,625    |
| Federal agencies bonds      | -          | -          | 249,850      | 250,729      |
|                             | \$ 545,490 | \$ 542,135 | \$ 2,550,965 | \$ 2,552,804 |

The interest rate at year-end is 3.76% and the maturity date is December 28, 2007. Investments are made through financial institutions whose credit ratings are high.

## 6. Long-term investments in private companies:

|  | 2006 |             | 2005 |             |
|--|------|-------------|------|-------------|
| Investment in a significantly influenced company | \$   | 6,001,519   | \$   | 5,513,046   |
| Less operating losses                            |      | (6,001,519) |      | (4,696,671) |
|  |      | -           |      | 816,375     |
| Investment in a subsidiary                       |      | 6,109,113   |      | 5,824,613   |
| Less operating losses                            |      | (6,109,113) |      | (5,824,613) |
|  | \$   | -           | \$   | 816,375     |

During the year, the Corporation sold its investment in the subsidiary for a cash consideration of \$1 and the right to receive, in accordance with conditions provided for in the agreement, royalties based on revenue generated from marketing of the technology.

In connection with the research projects conducted by the significantly influenced company, the Corporation is committed to invest \$7.8 million as part of a total of \$14.6 million. The financial commitments related to these projects are disclosed in the commitments mentioned in note 13 in connection with competition II.

# GÉNOME QUÉBEC

Notes to Financial Statements (continued)  
Year ended March 31, 2006

## 7. Capital assets:

|                                  |               |                          | 2006           | 2005           |
|----------------------------------|---------------|--------------------------|----------------|----------------|
|                                  | Cost          | Accumulated depreciation | Net book value | Net book value |
| Leasehold improvements           | \$ 25,971     | \$ 20,322                | \$ 5,649       | \$ 10,844      |
| Furniture and fixtures           | 213,805       | 102,590                  | 111,215        | 81,515         |
| Equipment - technology platforms | 2,920,281     | 2,407,321                | 512,960        | 1,013,358      |
| Equipment - research projects    | 9,139,666     | 8,309,066                | 830,600        | 2,371,737      |
| Computer and software            | 129,977       | 86,484                   | 43,493         | 47,098         |
|                                  | \$ 12,429,700 | \$ 10,925,783            | \$ 1,503,917   | \$ 3,524,552   |

## 8. Accounts payable and accrued liabilities:

|                              | 2006         | 2005         |
|------------------------------|--------------|--------------|
| Accounts payable             | \$ 2,058,049 | \$ 597,470   |
| Accrued liabilities          | 855,701      | 1,392,113    |
| Salaries and fringe benefits | 1,017,826    | 818,899      |
| Deferred revenues            | 92,217       | 167,345      |
| Sales taxes                  | 315,390      | 275,013      |
|                              | \$ 4,339,183 | \$ 3,250,840 |

## 9. Deferred contributions related to future expenses:

The Corporation receives contributions from Genome Canada and the ministère du Développement économique, de l'Innovation et de l'Exportation du Québec and/or from Valorisation - Recherche Québec. These contributions will be administered and distributed in accordance with the terms and conditions of the related agreements.

Deferred contributions related to expenses of future periods represent the unspent externally restricted funding and related investment income for the purposes of providing contributions to eligible recipients and paying operating and capital expenditures in future periods.

# GÉNOME QUÉBEC

Notes to Financial Statements (continued)  
Year ended March 31, 2006

## 9. Deferred contributions related to future expenses (continued):

The deferred contributions are:

|                                      | Balance<br>March 31, 2004 | 2005<br>Transactions | March 31,<br>2005 | 2006<br>Transactions | Balance<br>March 31, 2006 |
|--------------------------------------|---------------------------|----------------------|-------------------|----------------------|---------------------------|
| Contributions:                       |                           |                      |                   |                      |                           |
| Genome Canada                        | \$ 58,712,156             | \$ 23,820,539        | \$ 82,532,695     | \$ 17,391,647        | \$ 99,924,342             |
| Government<br>of Quebec              | 40,931,000                | 24,700,000           | 65,631,000        | 14,057,800           | 79,688,800                |
| VRQ                                  | 839,189                   | 1,276,662            | 2,115,851         | 1,476,339            | 3,592,190                 |
| Cancer Care Ontario                  | -                         | 704,310              | 704,310           | 2,167,973            | 2,872,283                 |
| Genome Prairies                      | 723,095                   | 675,783              | 1,398,878         | 530,760              | 1,929,638                 |
| FORNT                                | 500,000                   | -                    | 500,000           | -                    | 500,000                   |
| FRSQ                                 | 439,000                   | -                    | 439,000           | -                    | 439,000                   |
| MSSS                                 | 100,000                   | -                    | 100,000           | -                    | 100,000                   |
| Other                                | -                         | 45,000               | 45,000            | 26,851               | 71,851                    |
|                                      | 102,244,440               | 51,222,294           | 153,466,734       | 35,651,370           | 189,118,104               |
| Investment income:                   |                           |                      |                   |                      |                           |
| Interest received                    | 1,122,526                 | 537,115              | 1,659,641         | 445,375              | 2,105,016                 |
| Interest receivable                  | 33,834                    | (21,331)             | 12,503            | 2,028                | 14,531                    |
|                                      | 1,156,360                 | 515,784              | 1,672,144         | 447,403              | 2,119,547                 |
| Amount amortized<br>to revenues      | (71,770,159)              | (46,127,061)         | (117,897,220)     | (47,314,903)         | (165,212,123)             |
| Amount invested<br>in capital assets | (9,792,645)               | (1,214,593)          | (11,007,238)      | (1,422,464)          | (12,429,702)              |
|                                      | \$ 21,837,996             | \$ 4,396,424         | \$ 26,234,420     | \$ (12,638,594)      | \$ 13,595,826             |

## 10. Deferred contributions related to capital assets:

Deferred contributions related to capital assets represent the unamortized amount of contributions received for the purchase of capital assets. The amortization of such contributions is recorded as revenue in the statement of operations. The changes in balances of the deferred contributions are as follows:

|   | 2006         | 2005         |
|---|--------------|--------------|
| Opening balance                                       | \$ 3,524,552 | \$ 6,414,009 |
| Add allocation of funding for capital asset purchases | 1,422,464    | 1,214,593    |
| Less amount amortized to revenues                     | (3,443,099)  | (4,104,050)  |
| Ending balance  | \$ 1,503,917 | \$ 3,524,552 |

# GÉNOME QUÉBEC

Notes to Financial Statements (continued)  
Year ended March 31, 2006

## 11. Supplemental cash flow information:

|  | 2006        | 2005        |
|--|-------------|-------------|
| Non-cash transactions excluded from the change in deferred contributions:                      |             |             |
| Interest receivable  | \$ 2,028    | \$ (21,331) |
| Amount transferred to deferred contributions related to capital assets                         | (1,422,464) | (1,214,593) |
|  | (1,420,436) | (1,235,924) |
| Increase in advances to genomic research projects compensated by the reduction of fixed assets | -           | 198,382     |

## 12. Financial instruments:

The Corporation determined that the book value of its short-term financial assets and liabilities, including cash and cash equivalents, short-term investments, accounts receivable and accounts payable and accrued liabilities, approximated their fair value due to the short term of these instruments.

The fair value of the long-term investment in a private company cannot be determined because the investment is in share capital of a private company and, accordingly, such shares are not negotiated on an organized capital market.

The fair value of long-term investment is shown in note 5.

## 13. Commitments:

In accordance with an agreement entered into with Genome Canada with regard to a financial support commitment of \$138,032,691 related to competition I and II, to the Applied Genomics and Proteomics Research in Human Health Care and to Competition III, the Corporation has agreed, among other things, to obtain equivalent financing commitments from other parties. In this matter, financial commitments from the government of Quebec amounted to \$108,546,420 and an amount of \$29,486,271 is committed from other parties, of which \$2,442,170 remain to be finalized.

The Corporation is committed to finance research projects in the amount of \$228,157,295. As at March 31, 2006, the residual commitment for these projects amounts to \$73,507,077.

The Corporation entered into various agreements for services, equipment lease and rents including the Innovation Center's premises. These agreements expire at various dates until 2009. The payments under these agreements for the next years are: \$1,863,728 in 2007, \$1,091,961 in 2008 and \$20,004 in 2009.

## 14. Comparative figures:

Certain comparative figures for 2005 have been reclassified in order to conform with the financial statement presentation adopted in 2006.



# L'architecture du génome humain décortiquée

Le catalogue des principales variations génétiques présentes chez les 6,5 milliards d'humains de la planète et qui les distinguent les uns des autres a été présenté cette semaine à la communauté scientifique, qui s'est réjouie qu'un tel outil soit désormais disponible. Il permettra d'accélérer substantiellement la découverte des gènes responsables des grandes maladies communes telles que le diabète, l'asthme et les mala-

but de déboucher les gènes à l'origine d'une maladie intestinale inflammatoire, Tom Hudson et des collègues de l'Université de Toronto et du Massachusetts Institute of Technology de Boston se sont aperçus que les variations — ou polymorphismes — observées dans le génome des différentes personnes participant à l'étude semblaient être organisées en patrons, que les chercheurs ont appelés blocs d'haplotypes. Ils ont ensuite constaté que ces patrons — ou combinaisons de variations — existaient dans tous les chromosomes et qu'il serait intéressant de les identifier et de les cartographier.

C'est ainsi qu'en octobre 2002, plus de 200 scientifiques du Canada, des États-Unis, de la Chine, du Japon, du Royaume-Uni et du Nigeria se sont attelés au projet HapMap visant à dresser une carte des haplotypes présents dans le patrimoine génétique de 269 humains d'origines diverses.

Au cours du projet, il est apparu que le génome humain était structuré en près de 100 000 fragments d'ADN, appelés blocs d'haplotypes, qui en moyenne peuvent se présenter sous quatre versions dif-

PAULINE GRAVEL

L'annonce de ces résultats, qui figurent parmi les plus importants depuis le séquençage du génome, a été faite mercredi lors de l'ouverture du congrès annuel de l'American Society of Human Genetics, à Salt Lake City, en même temps qu'ils étaient publiés dans la revue *Nature*. Le Dr Thomas Hudson du Centre d'innovation Génome Québec, l'un des concepteurs de ce grand projet international et dont l'équipe a analysé les chromosomes 2 et 4 correspondant à environ 10 % du génome humain, a souligné en entrevue que la recherche génétique humaine vient ainsi franchir une nouvelle étape.

Le catalogue des variations génétiques (dénommé HapMap) qui n'est pas encore complètement réalisé permettra de mieux prévenir et diagnostiquer, voire traiter, certaines

maladies. Ces variations expliquent par exemple que certains individus aient les yeux bleus plutôt que verts ou marrons, et qu'ils soient du groupe sanguin A, B ou O. Ces formes différentes d'un même gène peuvent aussi s'avérer délétères et prédisposer à une maladie.

Les polymorphismes découlent tous de mutations génétiques survenues au cours de l'histoire de l'humanité. « Environ six nouvelles mutations surviennent à chaque génération, explique Tom Hudson. La majorité d'entre elles frappent dans des sites neutres n'ayant aucune fonction particulière. Mais quand elles se produisent dans un gène exerçant une fonction biologique importante, elles s'avèrent néfastes et peuvent provoquer des maladies graves, comme la fibrose kystique ou l'ataxie de Charlevoix-Saguenay. »

La plupart des polymorphismes résultent de mutations qui se sont produites il y a de 500 000 à un million d'années.



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## Highlights 2005-2006 Le Devoir

### Génétique

# Guy Rouleau cherche les gènes de l'autisme et de la schizophrénie

Le laboratoire du chercheur reçoit 17,8 millions de Génome Canada et Génome Québec

Sur les 25 000 gènes qui composent le génome humain, lesquels sont responsables de l'autisme et de la schizophrénie? C'est ce que cherchent à savoir Guy Rouleau et son équipe, qui viennent de recevoir 17,8 M \$ pour ce projet d'envergure qui occupera, pendant quatre ans, une vingtaine de chercheurs en plus du personnel permanent de leur laboratoire de l'Université. À terme, de 5 à 10 gènes devraient être découverts pour chaque maladie.

Pour ce généticien de premier plan à qui l'on doit plusieurs découvertes majeures depuis 15 ans (gène de la neurofibromatose de type 2; premier et second gène de la sclérose latérale amyotrophique, une dizaine de gènes responsables de maladies héréditaires, dont plusieurs importantes au Québec), ce n'est pas d'un projet ordi-

naires pour permettre d'envisager cette avenue. D'abord, le chercheur possède, grâce aux recherches du Britannique Seth Grant, la liste des 1024 gènes du génome humain liés au développement et au fonctionnement des synapses, ces connexions entre deux neurones qui permettant la transmission d'un signal nerveux. «Notre recherche va s'y concentrer parce que je suis convaincu que ces maladies passent par les défaillances des synapses», explique-t-il.

Le séquençage des gènes isolés chez les 288 sujets de recherche en provenance de quatre continents (144 souffrant d'autisme grave et autant de schizophrénie) permettra d'identifier les précieux gènes. Chaque gène pouvant contenir de 4000 à 10 000 paires de bases, ce sont plus de trois milliards de paires d'adénine, de cytosine, de guanine et de thymine (ACGT) qui dé-

finissent le génome du CHUM, le chercheur dans son bureau de l'hôpital Notre-Dame. On sait que l'environnement immédiat (famille, milieu physique et social, éducation) joue un rôle dans le développement de ces maladies, mais on ne conteste plus, aujourd'hui, le rôle de l'hérédité. «La part génétique chez certains malades gravement atteints est indiscutable, mentionne le généticien. Il est certain que plusieurs gènes sont concernés. Quand on les aura découverts, les applications sociétales et commerciales pourraient être très intéressantes.»

Pour élaborer une médication plus adaptée au profil de chaque patient, l'industrie pharmaceutique pourrait bénéficier des connaissances scientifiques acquises grâce aux recherches du Dr Rouleau. Mais c'est au chapitre de la recherche fondamentale que son apport pourrait être le plus significatif.

«Actuellement, les équipes ciblent des gènes limités de gènes avant de les