

EDITORIAL

In literature it is often given that Mendel's 1865 work with pea hybrids was neglected until its „rediscovery“ in 1900. This common statement is false. There is one place in the world where Mendel's achievement was appreciated already in 1884. It were Mendel's colleagues from the pomiculture, viniculture and horticulture section of the AgriCulture Association who considered Mendel's hybridizing experiments epoch making as published in their obituary on Mendel. Those Moravian fruit tree growers, oenologists and gardeners cooperated with Mendel and must have discussed the problems of hybridization in their monthly meetings in the Bishop's Court.

In Mendel's time the Bishop's Court in Brno was a unique centre of systematic scientific research in Moravia and Silesia. Learned feudals, aristocrats and new intelligentsia made Bishop's Court to the representative museum of Moravia and seat of their scientific academy then called Royal and Imperial Moravia-Silesian Association for Furtherance of Agriculture, Natural Science and Knowledge of the Country generally known as "Ackerbaugesellschaft". The AgriCulture Association (hereafter AA) developed physics focusing on meteorology, botany, zoology, entomology, geology and mineralogy, mathematics and statistics, chemistry and drinking water and mineral resources research and documentation. AA laid the foundations of the Moravian gallery and the Moravian Library. In encyclopaedic elaboration AA is entered among scientific academies of world fame and appreciated as a progressive institution of research specialized in science and art. Its members initiated building of high schools with technical orientation (real modern schools) and started a Technical Institute of Higher Learning of a university character. As a teacher of physics and nature science. Mendel was highly appreciated for participating actively in the conversion of the classical secondary grammar schools to modern schools stressing real subjects on nature drawing from research into nature. Experimental facts started to suppress speculations and revelations.

Officially Mendel became an AA member in 1851. He was promoted to significant positions in AA Central Board and continued to work in AA till his death. After 1848 the Moravia-Silesian AA split into a Moravian AA and a Silesian AA. The Moravian AA seated in Bishop's Court was organized in a pomiculture, viniculture and horticulture division, section of forestry, bee-keeping society, agriculture section, history and statistics and a natural science unit comprising mineralogy, geology, botany, zoology, entomology and meteorology. AA was decisive for Mendel to start his meteorological observations and his experiments with peas that form the substantial part of his publication activities. Mendel used to come to Bishop's Court very often to work in the AA Central Board, taking part in specialized discussions of naturalists, horticulturists, pomologists, wine growers, bee-keepers and meteorologists. It was the interdisciplinary and creative atmosphere of AA that instigated Mendel to start his experimental work. The Mendelianum wish to create a Visitor Centre revealing the Attractive World of Genetics in Bishop's Court to instigate young people in the very place where Mendel became motivated for his experiments with plant hybrids and started his scientific career.

Jiří Sekerák



Bishop's Court of the Moravian Museum Brno

MENDEL BACK IN HIS SCIENTIFIC SOCIETY A EUROPEAN PROJECT FOR A NEW MENDELIANUM VISITOR CENTRE IN BISHOP'S COURT

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www.mendelianum.cz

The project of a new Mendelianum Visitor Centre draws from the *genius loci* of the most famous personality in natural sciences, J. G. Mendel, founder of genetics. Therefore, the Centre will be situated directly in the place of the former seat of the Royal and Imperial Moravia-Silesian Society for Promotion of Agriculture, Science of Nature and Knowledge of the Country (henceforth Agriculture Association) in the historical building of Bishop's Court. Mendel worked in its scientific sections and later its Central Board from 1855 till his death. The idea of building up the Mendelianum in this significant place of science rooted in the activities of Moravian learned societies of the end of the 17th and the beginning of the 18th century was first articulated by Anna Matalová at a time when the monastery terminated the renting charter with the Moravian Museum and the Mendelianum had to leave the Old Brno Monastery. It happened in 2000.

In the authentic historical and scientific background of Bishop's Court, modern genetics and molecular biology will be presented in the new Mendelianum Visitor Centre that will be realized in 2012–2014. In 1965 on the occasion of the 100th anniversary of the publication of Mendel's *Pisum* paper an international exhibition was organized in Bishop's Court presenting the then actual state of genetics in plant, animal and human genetics on molecular level. It was three years after Watson and Crick's Nobel Prize for the discovery of the DNA structure that put an end to expurgation of genetics in Czechoslovakia and other pro-Soviet satellites. The international exhibition brought genetics back to the place where it was born. After the decades of repudiation of genetics, the genetics exhibition was an unprecedented event in the post-war Czechoslovakia.

As genetics concerns many branches of medicine and science and also our everyday life, the chief aim is to create an attractive and simultaneously scientifically well founded setting for gathering research achievements and disseminating scientific knowledge. The presentation of the process of science in the making will constitute the motivation basis for further education of teachers, students and broad public and its major goal will be evoking and strengthening of their interest in science and research, further education and orientation towards the field of molecular biology and genetics. Moreover, molecular biology belongs to priority trends according to the document *Long-term basic trends of research* issued by the government of the Czech Republic. The project complies with the actual call for creation of a base for popular and scientific activities focused on potential candidates of science and research interested in molecular biology and genetics.

Since 1962 (Watson-Crick Nobel Prize) the Moravian Museum has been systematically concerned with the historical research into Mendel's and his scientific heritage. The Moravian Museum opened a Mendelianum in the Old Brno Monastery to the public in 1965 and run it until 2000. It was regularly organizing (in cooperation with other institutions, particularly Academy of Sciences and universities) a series of popular and scientific exhibitions dealing with popularization of genetics, molecular biology and medicine in the Mendelianum rooms in the Old Brno Monastery in Brno. After the restitution of church property as a consequence of the 1989 political change, the Mendelianum acquired the support of the Augustinian Abbot Thomas Joseph Martinec, OSA. When he died in 1995, no Augustinian Abbot succeeded him.

Later a new position of an Abbot for Old Brno comprising also Brothers of Mercy etc. was created. The Mendelianum of the state Moravian Museum had to leave the monastery by the end of 2000 in agreement with the ten-year-protection of state institutions in church objects. Ombudsman Otakar Motejl offered the Mendelianum to continue their activities in realizing exhibitions and organizing lectures temporarily in the building of the ombudsman. Moreover, Dr. Motejl proposed the realization of a garden plot with Mendel's experimental plants under the balcony of his office. His proposal was realized and became known as *Plantae Mendelianae*. The provisional state of the Mendelianum under the protection of ombudsman lasted from 2001 to 2008 and played a significant role in maintaining living contact with schools and the public in the exhibition *One Code for Life Variations* in ombudsman's premises. Large exhibition space made possible a number of accompanying exhibits on actual problems of genetics. The Mendelianum was given free at their disposal two conference rooms for symposia and conferences. Excellent working conditions resulted in publication of the book *Genetics behind the Iron Curtain* and the Czech commented translation of Mendel's classic papers on *Pisum* and *Hieracium* and his scientific correspondence.

Each year the growing interest of students and pupils in science and research interconnecting the actual genetics and the past of Mendel's work has been evident in the increasing number of participants in the conferences organized by the Moravian Museum in the Dietrichstein Palace of the Moravian Museum in Brno, Palacký University in Olomouc and Mendel's birthplace in Hynčice. Since 1992 there exists a tradition in organizing events for the broad public, students and teachers (Mendel Forum series) and learned public (Mendel Memorial Medal Lecture series) in which outstanding world geneticists even Nobel Prize laureates take active part. The interest in participation in the conference series Mendel Forum, Mendel Memorial Medal Lectures, DNA Afternoons, Excursions in the Footsteps of Gregor Mendel in Brno and others are massively attended. The project was initiated also by high school teachers and has been supported both by local and foreign experts.

Three integrated parts in different levels are supposed to constitute the Visitor Centre: first, from gene to function (3D tour in the cell following gene expression); second, from theory to practice (implementation of knowledge, active participation in lab work, results of science and research in our everyday life); third, from Mendel to up-to-date knowledge at the level of Nobel Prizes (the importance of recent molecular biology and genetics, discoveries and researchers within the region, Czech and world science intended for pupils, students and broad public).

Thanks to the formation of the three-level-pathways, the visitors can make use of their own creativity in gathering knowledge from the presented genetic stories, moreover, they can return repeatedly to such parts of the exhibition that awoke their attention or require a repeated study. Moreover, the visitors can interact with science and research due

to 3D models of replication, transcription and translation as well as in the molecular and the Mendel labs. Individual modules will help in understanding the importance of genetics in our everyday life: the visitors will realize that the same expression as shown in the model takes place in their own cells incessantly and enables a coordinated functioning of their whole organism. The visitors will learn to understand better the biological structure and life rhythm.

To achieve scientifically correct but also highly attractive training, apart traditional ways of popularisations, very illustrative 3D dynamic models, and also a real genetic laboratory have been included to get visitors closer to the scientific research.

The Mendelianum Visitor Centre will develop a unique and historically authentic milieu to organize series of events aimed at propagation and popularization of science and research.

The expert team consists of a consolidated group of professionals from the Brno region having links to expert capacities in the CR and abroad to form an integrated network of high quality cooperation. The success of such cooperation has been already proven during several popular and scientific events organized by the Moravian Museum and other institutions, from exhibitions, seminars, lectures, trips, excursions up to the practical laboratory training. All members of the team take an active part in the university education, in educative projects for high school students and many of them have been popularizing science widely. The realization team of the construction part of the project is composed of members with experience from the field to achieve the goals. The project manager is the director of the Moravian Museum guaranteeing a successful fulfilment of the project at an adequate quality level.

The Moravian Museum is completely ready to realize the project in full extend and to create a unique Mendelianum Visitor Centre interconnecting historical and modern conception of building, exploiting the genius loci connected with the beginnings of science in Moravia and the opening experiments of the founder of genetics J. G. Mendel with the attractive present recent science at the highest level, creating necessary intersection of theory and practice not only in science and research but also in everyday life. Moreover, the Mendelianum Visitor Centre will be a welcome background for the organization of popular-scientific events with high attendance, recently organized under provisory conditions and enable further development of other activities focused on motivation of young generation to get involved into the attractive world of genetics and related research.

The Moravian museum (the former Museum Franciscum) is the second biggest and oldest museum institution in the CR. It was legally constituted in July 1817 by Imperial Patent of Francis I. The museum preserves more than 6 millions of items, which represent a valuable research material from the field of natural and social sciences, such as literature, music, archaeology, mineralogy, botany, zoology but also history of sciences and genetics, particularly concerning the role of J. G. Mendel in this institution. Apart collecting, preserving and researching and investigating, the Moravian Museum organizes exhibitions, lectures, excursion and many other activities for the general public. Therefore, the experience of the applicant in popularisation, propagation and medialization of science and technique has been broad (www.mzm.cz). This fact corresponds also with established infrastructural and material facilities which form a basis for the project realization. Guarantee-specialist of the applicant participated successfully in several ESF projects, such as CZ.04.1.03/3.2.15.2/0270: Active engagement of secondary school teachers in creation and use of multimedial educative programs in biology and in integration of science, research, specific education and practice.

DIE
NATURWISSENSCHAFTLICHE
SECTION

DER
KAIS. KÖNIGL. MÄHR. SCHLES. GESELLSCHAFT
ZUR BEFÖRDERUNG DES ACKERBAUES DER
NATUR- UND LANDESKUNDE

Hal aus Hochachtung für Euer **HOCHWÜRDEN** wissen-
schaftliche Kenntnisse und Verdienste, und wegen des lebhaften
Interesses, welches Sie für die Naturwissenschaften bezogen, in
Ihrer heiligen Sitzung am 4. Jänner 1855 Sie zum
Ihren wirklichen Mitgliede erwählt.

Indem Euer **HOCHWÜRDEN** hiervon in Kenntniss ge-
setzt werden, hofft die Section von Ihrem regen Eifer und un-
fassenden Kenntnissen die thätigste Förderung ihrer wissenschaft-
lichen Zwecke.

Brünn am 12. Jänner 1855

Der Vorsitzende

Wilhelm Kraus

Der Secretar

Dr. Aug. Zawadzki.

Dr. Josef Wüstenfeld
Laut Johann Guayard Mendel, Bischoflicher Ex-Referendar
Augustineus Wiltz, k. k. Prof. an der k. k. Oberrealschule in
Brünn.

Fig. 2. Mendel's decree of the Natural Science Society of the Agriculture Association, 1855.

i. Luyon

CENTRAL-AUSSCHUSS



der Kaiserlich-Königlichen Mährisch-Schlesischen

Gesellschaft zur Beförderung des Ackerbaues, der Natur- und Landeskunde.

Sitzungs-Protocol

am 5. Februar 1873.

Vorsitzend: Josef, Präsident Mennel - von den Angehörigen
an diesem anwesend in Olmützbürg und Praetzel.
Anwesend: Adm. Bäratta, Adm. Pölschen, Geh. Rat, Graf Fries, Trautzsch, Trautzsch,
Hauptmann: Graf Leopold von Sartori. Weber und Sartori.
a. Auf. bezieht über die neue
Leistungsmöglichkeit der
jäm' l. Stoffe;
b. über die Anwesenheit zum
M. J. 1873.

C. L.
Zur Handt.

Auf. bezieht über die
Anwesenheit 1872, einige
Ergebnisse von...

- C. L.
1. die...
2. jene für...
3. die...

Fig. 3. The minutes of the Central Board of the Agriculture Association meeting presided by Gregor Mendel written in his hand, February 5, 1873.

The Moravian Museum has been the first scientific state institution in Brno that was the product of the changing Europe after Napoleonic Wars. The pre-Mendelian project aimed at freeing science from the realm of theology and philosophy and was propelled by the Agricultural Association. The Agriculture Association applied to the Governor for a possibility to institutionalize a scientific and cultural centre in Brno. In their petition of 1816 it outlined its research and scientific goals. It was soon granted approval by the Austrian Emperor and given the Bishop's Court building for its museum collections and societal activity. Since March 24, 1818, the Bishop's Court became *de facto* the seat of the Agriculture Association and a museum depository of its archaeological, historical, geological, mineralogical, botanical, entomological and zoological collections. In Otto's Encyclopaedia the Agriculture Association is classified as Moravian academy of science that implemented systematic scientific research and documentation and laid the foundations of technical high school and university education in Moravia. Mendel took part in the technical education from 1854 to 1868 as a professor of physics and nature science at the Brno technical high school.

The Agriculture Association was organized in scientific sections and societies: agriculture, horticulture, fruit-tree growing, viticulture, apiculture, forestry, natural science, history and statistics. At the forefront was the research in nature resources. New findings were included into natural science education. Such a trend should create equilibrium of natural sciences with the humanities to safeguard the technical progress and prosperity of the country. Mendel was performing active research in Brno from 1854 and was recommended as a regular member of the natural science section of the Agriculture Association in 1855. In 1861 its members constituted the Nature Research Society (the original Naturforschender Verein) as a society approved by the Agriculture Association. Mendel published his discovery in a lecture in 1865 and in print in the journal of the Nature Research Society in 1866. Bishop's Court was the seat of the meetings of both the central committee of the Agriculture Association and its sections in which Mendel took part regularly till the end of his life. As a member of the Central Committee of the Agriculture Association Mendel often presided over its meetings and interfered into important matters. Next to the offices of the Agriculture Association there was a library in the Bishop's Court where Mendel influenced the acquisition policy of books. Mendel was working as an expert for meteorology in the Agriculture Association already in 1857. Most papers by Mendel are on meteorology. As a member of the central committee of the Agriculture Association Mendel supervised the activities of the Francis Moravian Museum (now the Moravian Museum) and signed its annual reports.

From the above historical outline it has been evident that Mendel's scientific research and discovery makes sense only in the historical context of the Agriculture Association and its museum. Such context of Mendel is a challenge to the perpetuated literary myth that Mendel's discovery "came as a blow from the blue sky", that Brno was an "insignificant" provincial town and that the journal of the Nature Research Society was "obscure". In Brno Mendel's thinking developed within a rich liberal monastic community and found motivation for free scientific research and actual research tasks in the Brno Agriculture Association that was a think tank and implementation body for the region. Thanks to Mendel Brno has become an important place in the history of growth of human mind not only within the scope of Europe but the whole cultural world. The Moravian Museum continues historically in developing Mendel's scientific heritage. Till now the Moravian Museum has been active in research and documentation in the original

40 *Experimentelle*

Versuche
über
Pflanzen-Hybriden

von
Gregor Mendel.

(Abgedruckt in den Verhandlungen vom 8. Februar 28. März 1865).

Einleitende Bemerkungen

Dünstliche Laupflänzchen, welche an Pflanzungen daßhalb von
genannten wachen, um eine Saubere-Meinung zu erzielen,
wären die Hauptaufgabe zu den Haupten, welche die
bevorzogen werden sollen. Die wichtigsten Regeln sind,
mit welcher die besten Hybriden man immer wiederholen,
so oft die Laupflänzchen zu gleicher Stelle gegeben, gab
die Erzeugung zu weiteren Experimenten, deren Aufgabe
es war, die Entwicklung der Hybriden in ihrer
man zu verfolgen.

Dieser Aufgabe haben sorgfältige Beobachter, wie Hübner,
Gärtner, Herber, Lecoq, Michura u. a. einen Teil ihrer
Lebens mit unermüdelicher Evidenz gewidmet. Namentlich
hat erst Gärtner in seinem Werke, die Landwirtschaft
im Pflanzenbau, die wichtigsten Beobachtungen mitgeteilt,
und in neuerer Zeit werden von Michura verschiedene
Untersuchungen über die Laupflänzchen der Pflanzen
dies. Man es nicht gütig ist, ein allgemeines
gültiges Gesetz zu sein die Bildung und Entwicklung der
Hybriden aufzustellen, so kann das Nimmende Pflanzen
aufman, der den Umfang der Aufgabe kennt und die
Befähigung zu wünschenswert, mit denen Haupten

Fig. 4. The title page of Mendel's manuscript on Plant Hybrids read for the Nature Research Society in 1865.



Fig. 5. *The Bishop's Courtyard in 1850, watercolour painting by F. Biel.*
 Fig. 6. *Logo of the Moravian Museum.*

place as once Mendel had been. Through its continuity of scientific research down to Mendel it can medialize an authentic testimony about the scientific context of Mendel's research. No other scientific institution in the world can claim such a direct continuous connection with Mendel as the Moravian Museum. It is the task of the Moravian Museum to mark its direct link to Mendel in the cultural map of Europe.

The history of the Moravian Museum has passed through nearly 200 years of scientific research and documentation and popularization of nature and society in Moravia in the world context and international cooperation. In 1817 the Agriculture Association (connected with Mendel's scientific and managing activities) started the museum acquisition policy with a few private collections. Now the Moravian Museum houses a collection of more than 6 millions of items that are classified, inventoried, deposited, restored, conserved, displayed and open to the study by experts in depositories and archives. The structure of the Moravian Museum covers natural science departments of mineralogy, geology, botany, zoology, anthropology and history. Social sciences are being developed in the field of archaeology, history, ethnography, music, theatre and literature history. From the point of view of specialized museum work Moravian Museum established two pivotal methodical centres, one for information technologies (CITeM) participating in important national tasks (DEMUS, CESik, National authorities) and representing CR in international projects (Michael-Plus, Restitution-Art). The second one specializes in pedagogic and museum work and work with disabled youth.



The future of the Moravian Museum comes from the principles of continuous cultural and scientific evolutionary process and draws from the ideas of the past in constitution of realistic formation of common memory in the present implementation of future visions.

First, the Moravian museum focuses at a continuous reconstruction work of museum's buildings. Second, priorities must be followed to avoid mediocrity. Third, priority projects must draw immense support. Fourth, Mendel, Janáček and the Věstonice Venus as international trademarks must be treated in a special regime. Fifth, scientific especially natural scientific research must be given special support with respect to the region and with respect to globalization.

The Mendelianum project has no official partners, however, there are several experts participating in the project coming from other institutions in the Brno region with links to home and foreign institutions.

- *Institute of Animal Physiology and Genetics CAS, v.v.i.* (contact person: prof. Milo Macholán)
- *Mendel University* (contact person: assoc. prof. Tomáš Urban)
- *University of Veterinary and Pharmaceutical Sciences* (contact person: prof. Petr Hořín)
- *Masaryk University – Faculty of Science* (contact person: assoc. prof. Omar Šerý)
- *Masaryk University – Medical Faculty* (contact person: assoc. prof. Aleš Hampl)
- *Masaryk Cancer Research Institute* (contact person: Dr. Lenka Dubská)

Partner experts are included into the project to cover different sections of the broad spectrum of science popularization from basic research to applied research and medicine. The experts will work as consultants to guarantee a high quality of the final script of exhibits. Thus, a highly attractive and scientifically exact presentation of recent achievements of scientific research and its implementation will be achieved. The experts will be contributing to the web database of the project where the most recent results of science and research will be presented in an attractive form as a motivating medium of interest for the young generation.

The Visitor Centre will be located in the historical building of the Bishop's Court in an attractive locality in the centre of Brno. The arcaded Bishop's Court with the cathedral in the background is one of the most impressive views in Brno. It is a place of an excellent position from the viewpoint of the number of visitors and access, open to anybody to enter, not displaying any socioeconomic barriers. The project concept, moreover, supports equality based on one universal genetic code. The historical complex creates a harmonic link of the Mendelian past and the present development of genetics and molecular biology, continuity with Mendel's scientific work.

The Visitor Centre location has been based on the fact that the Moravian Museum has been a legitimate continuer of the research and education activities in the spirit of Mendel's Agriculture Association scientific programme and cultivates systematic documentation of Mendel's scientific heritage. The Mendelian vision of the Moravian Museum encompasses the following work:

1) **To create a unique place for popularization of science and research** which comes from the *genius loci* of a world famous personality of J. G. Mendel and his scientific heritage in genetics and molecular biology: on European and world scale the personality of J. G. Mendel facilitates formation of international contacts, therefore the project considers also this aspect. As a part of the exposition, original dedications of Nobel Prize Laureates in support of the Mendelianum in the Moravian Museum will be displayed. The

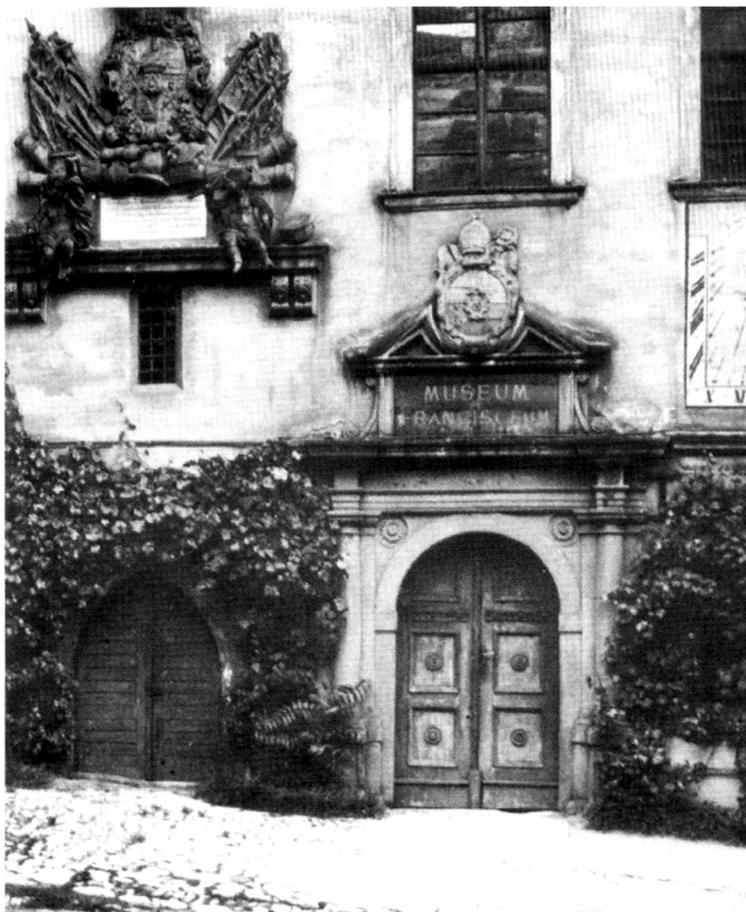


Fig. 7. The original entrance to the former Museum Franciscum in the Bishop's Court housing the Agriculture Association.

Moravian Museum develops Mendel's scientific tradition systematically for almost 50 years (since 1962). For this reason, the Centre is located in the historical seat of Mendel's Agriculture Association in Bishop's Court – the genius loci of Mendel's learned society at the time of opening his experiments.

The Moravian Museum continues in developing of the research program set by Mendel's historical Agricultural Association creating thus a unique background to the presentation of actual science and research for the public. Moreover, this location is very attractive thanks to its position in the very heart of the historical city centre of Brno.

2) To establish an attractive motivating facility for illustrative explanation of basic genetic principles at the molecular level in the form of 3D dynamic tour of the visitors directly through the cell nucleus and into the cytoplasm in the way of real gene expression (DNA transcription in the nucleus, RNA translation in the cytoplasm, on ribosomes). This highly illustrative approach will be accomplished with information related to the application of knowledge and modulations of particular steps of gene expression in the medicine and common life (tumours, HIV infection, therapeutics interventions, consequences of the failure etc). A tour (in a glass lift) witnessing gene expression enables observing cross

combination of different perceptions and makes elucidation much easier. Understanding the basic principles and their applications form a necessary basis for the understanding and positive income of further details and creating of a logical system making a further study reasonable and deepening the interest in the problem complex.

3) **To elucidate the most recent and interesting discoveries in genetics and molecular biology (Nobel Prizes):** molecular biology has dominated Nobel Prizes in Physiology or Medicine in the last decades and this applies also to several Prizes in Chemistry. Nobel Prizes represent a kind of Oscar Fame in science and thus their popularization makes the topics more attractive and motivates the target group for participation in science and research in the field of molecular biology and genetics. Along with these discoveries, recent findings of the research in the Brno region and the CR will be introduced. For example, Brno laboratories deal with several “Nobel topics” such as genetic control of early development (NP 1995), cell cycle and its regulation (NP 2001), programmed cell death (NP 2002) – reviewed in publication Matalová et al. 2010 (ISBN 978-80-7305-093-1, in Czech), impact factor papers are available at Web of Science, in the RIV database etc.

The expert project team keep in touch with Nobel Prize Laureates and posses a collection of their dedications to the Mendelianum that will be displayed in the exhibition as a motivation element. The visitors will get acquainted with the possibility of meeting Nobel Prize Laureates in person and discuss not only scientific topics with them.

4) **To integrate theory and practice:** the most attractive from the point of view of the general public and young people interested in the work in science and research are always the results with direct applications into practice and common situations in life. Therefore, a particular interest will be focused on genetically modified organisms, therapeutic potential of stem cells, tumour transformations etc. This part of the Mendelianum Visitor Centre will also create a background for accompanying lectures, seminars and events related to practical demonstrations of molecular methods implementation.

5) **To involve visitors into research (laboratories):** integration of the theoretical background of science and practical aspect of research is crucial not only in education but also in popularization of science, therefore laboratories are an important part of the Mendelianum Visitor Centre. Two kinds of laboratories will be accommodated in the Centre: 1) modern laboratory for molecular biology with real equipment, which enables a direct involvement of the visitors into research at the current level, 2) classical Mendel Lab where the visitors will see the trouble in the artificial pollination which Mendel was facing, the visitors will also take part in evaluation of Mendel’s hybridizing experiment e. g. round vs. wrinkled pea seeds at different levels from games to real statistics and conclusions. This lab will be supplemented with interactive objects helping in understanding genetic principles (e. g. colour drawings of the hybrid and its progeny so that children can discover that there is no blending of traits, no inheritance of traits but only inheritance of genetic particles-information that are transferred from one generation to the next) up to a more sophisticated knowledge (gene interaction, incomplete dominance etc). The real casual study is the best way for a complex study.

6) **To create facilities for accompanying events** (linked to Mendel Forum, DNA Afternoons etc) and education of higher number of visitors: as Gregor Mendel Genetic Department of the Moravian Museum organizes several events for 100–200 participants, an important part of the project is creation of a bi-functional room in the Historical Hall to serve as a lecture hall as well as a laboratory for involving of visitors directly into research in the molecular biology (DNA isolation, DNA electrophoresis, immunohistochemistry, genetic modifications in explant cultures, cell cultivations etc).

7) **To compose a three level guide line** based on different qualification and knowledge

perception of visitors. The project is primarily focused on potential candidates of research and science, particularly on the youth. Motivation must be effective already at the elementary schools, where the knowledge structure substantially differs from the high schools where students make the final decision: why study and why study science faculties. After achieving university education motivation for work in science and research is different. The project attempts to keep the university students interested in continuing their career in science and research.

Therefore, in the Mendelianum Visitor Centre, audio instruments will be available providing information at different levels and according to individual choice. As internationalization of education has been emphasized and more and more schools offer English programs, the Mendelianum Visitor Centre will provide information also in English. Moreover, it will reinforce the knowledge of the scientific language and the correct use of terminology (many English terms in molecular biology have been introduced into the Czech scientific language). The structuralized multilevel system of education and motivation creates very realistic preconditions for repeated visits to the Mendelianum Visitor Centre in the process of growing knowledge.

8) **To cultivate aesthetic feeling of the visitors** teaching them to learn for ability and ornament. To awake consciousness about the significance of Brno scientists from regional and world point of view. The visitors will be stimulated to learn more about Brno of Mendel and follow him in the footsteps through the town. The visitors will learn more about J. G. Mendel not only as a scientist, but also a student, teacher, citizen, organizer of fruit and vegetable exhibits, examiner of fruit tree growers, president of the bank and an oversensitive pastor and unlucky prelate. The visitors will be offered a map showing the places of interest in Brno connected with J. G. Mendel.

9) **To establish and actualize an internet database and communication platform.** A special website will be created for the project where information related to its realization will be accumulated as well as details to accompanying events, project materials etc. Moreover, the website will serve as a communication platform for the project team members and the public. Also an international network will be opened to communicate historical and scientific issues as well as recent problems of molecular biologists and geneticists.

Taking advantage and full use of genius loci of Bishop's Court connected with the name of the world famous personality of South Moravian region for popularization and propagation of science and research in several directions:

- vertical integration: from the historical scientific basis to the actual results of science and research, innovations in popularization activities of the scientific heritage of the Brno personality of J. G. Mendel, interconnection the past with the present knowledge,
- horizontal integration: creation of the room for accommodation of a spectrum of activities from seminars organization up to massive popularization events including practical elements, interconnection of theory and practice with everyday life (themes of wide societal interest),
- interactivity: direct personal engagement of those interested in science (3D way through the cell in direction of gene expression) and research (genetic and molecular laboratory),
- interdisciplinarity: spreading knowledge about the most actual results of research on the level of Nobel prizes and their broad significance in a series of branches of science and research, practice (also for everyday life),
- internationalization: strengthening Brno position in the scientific and cultural map of Europe and the world, accentuating the contribution of science of CR to world science and introducing significant personalities of science and research in Brno and CR.

With main goals of

- making accessible the problems in science and research in the field of genetics and molecular biology to the students and everybody interested in science and research in the making,
- creating a suitable milieu for attractive popularization of science in maintaining scientific level to motivate those potentially interested in the activity of science and research,
- preparing conditions for cooperation of research and educational institutions for strengthening interest in the activity in science and research in the field of genetics and molecular biology (priority discipline of Long-term Basic Trends of Research).

Target groups are students, pupils, teachers and general public. The priority target group is represented by the young generation, particularly by pupils and students considering their further studies, practice and career. To this group may be included also teachers who have a role in multiplication of motivation. Therefore, the project concept has been conceived particularly to meet the needs of this group.

The target group in broader aspect has no limitations. The project applies for anybody with an interest in science and research results and serves for motivation and interest development in the area of education, science, research in the area of genetics, molecular biology and practical application of results.

Project benefits for the target group are supposed in several aspects:

- **Education and motivation of the target group in the field of molecular biology and genetics.** The key step in professional education is interconnection of the most recent scientific knowledge and its exploitation in an easily conceivable practice. Such approach leads to an increased motivation of the target group and intensifying its participation in the project and increases the respect for forging the way to new literacy. Improving knowledge motivates best.
- **Active engagement of the target group in the recent genetics.** An important part of the Mendelianum Visitor Centre is a direct contact of visitors with the highly illustrative 3D models in reality. Further active participation takes place on interactive computer screens on direct verification of obtained knowledge and enables extending precision of the intake new knowledge.
- **Participation of the target group in scientific communication.** The Mendelianum Visitor Centre will become a platform for popular scientific conferences, seminars, lectures of scientists and researchers from the CR and abroad etc.
- **Personal involvement in laboratory work** in the laboratories of the Centre (the Mendel Lab and the Molecular Biology Laboratory). It is the best motivation yielding satisfaction if the visitors succeed in performing a real experiment with their own hands.
- **Further scientific education of the target group** by making the latest information accessible. Interconnecting the scientific achievement of Mendel with recent knowledge in genetics and practical applications is an important multiplication step for further events and activities (short term exhibits, attractive publications, etc) and creates a great option for leisure time with an educative surplus.

The project realization is supported by cooperation of secondary school and university teachers, university paedagogues and researchers, and world known scientists.

To interconnect the historical and modern aspects of the Mendelianum Centre, the baroque entrance (the main gate to the Mendelianum Visitor Centre) will be reconstructed with plaques attached according to the publicity rules of OP VaVpI and the neighbouring entrance corner will be revitalized. The counterpoint of the baroque architecture and the

architecture of the genetic program to its realization will produce a moving effect of uniqueness.

Through the baroque arch, the visitors will enter directly the cell nucleus – module “From genetic part to its realization”. At the entrance, the size relationship between the organism (human being) – the organ – the tissue – the cell and the nucleus will be demonstrated. The nucleus will be displayed as a 3D space containing DNA molecules which undergo replication and translation (all shown in 3D models proportional to the size of the room. The part of the 3D models (basement) will be continued in the first floor which the visitors reaches by a lift making its way through a stylized nuclear pore (transcription of mRNA from the nucleus into proteins). The lift movement will follow the unfolding of a folder showing the dynamic DNA replication process for the visitors standing in the ground floor waiting for entering the cytoplasm (the lift).

The aim of this exposition module is to get the visitor directly into action in the cell and participate visually in the gene expression process. Here, the visitors grasp easily the basic terms and principles necessary for a deeper understanding of the molecular science and genetic research.

Particularly the following terms will be explained: chromosome, gene, genetic information, genetic code, DNA, RNA, replication, transcription, translation, heredity, genotype, genome, transcriptome (the ground floor), translation, protein, phenotype, proteome (the first floor) using design objects and screens on the walls.

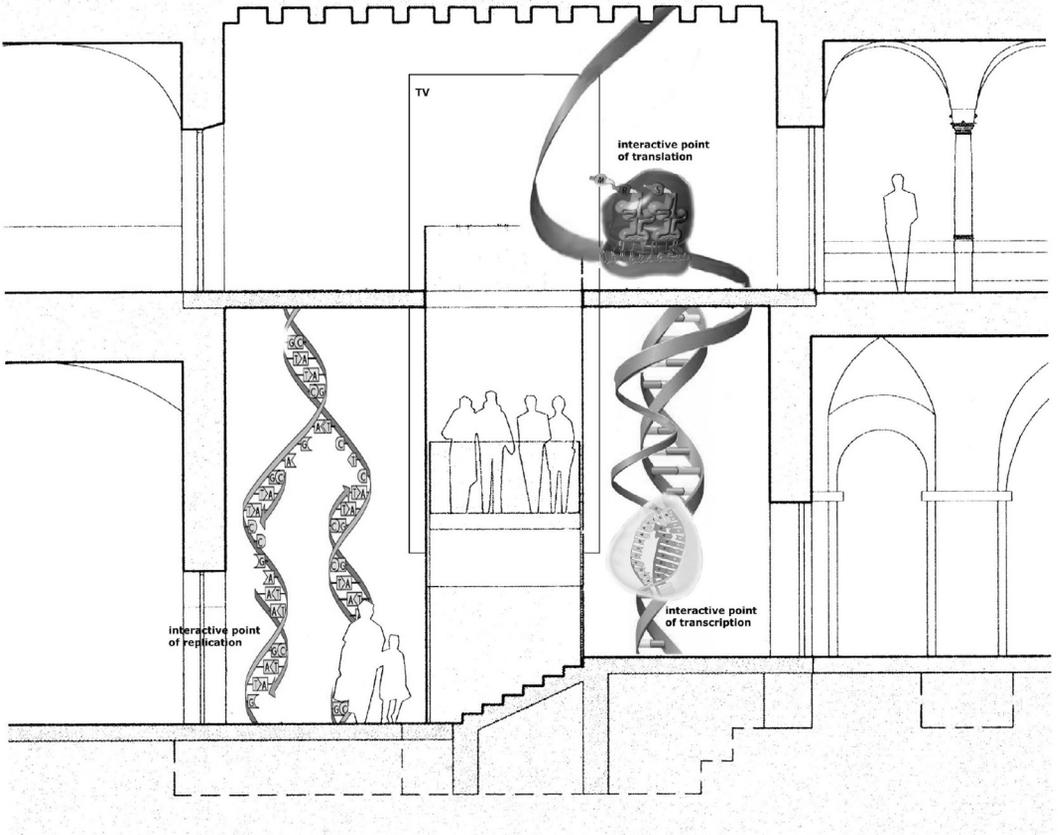
Next to 3D models there will be used classic panel presenting a combination of a drawing/picture and the accompanying text. Text will be reduced to one short self contained key sentence that will be further elaborated and specified to enable a stratified informing of the visitor on different levels of perception.

The next component in this part of the exposition will be the interactive computer technique enabling e.g. training in assembling DNA and RNA molecules. A big computer screen will be applied so that more visitors can follow the computer program at work. Competition motivation will be applied (e.g. the quickest combination of complementary first ten nucleotides in the molecule) which is attractive particularly for groups of visitors (families, school classes).

For kids and broad public, puzzle games will be available to understand complementarity principle of nucleic acid molecules and organization within the cell. On the backside of the puzzle pieces, chemical structure of the genetic letters and function of cell organelles will be given for further education in a form of play or competition.

The basic principle of gene expression creates the starting point for individual genetic stories. The stories integrate results of science and research presented in a popular form at the background of Nobel Prizes achievements. Such stories of significance are attractive both for the lay public and particularly the young people because they open the window to the world of highest scientific achievement.

MORAVIAN MUSEUM - MENDELIANUM (VISITOR CENTRE)



The Noble prize legends will raise and answer important questions.

- What inherits and how? (Mendel, 1865)
- Where and how is heredity transferred? (Morgan et al. NP 1933, Avery et al. 1944, Watson et al. 1953/NP1962)
- How does the genetic code work? (Nirenberg et al. NP1968)
- How to read the genetic programs? (Sanger et al., NP 1980, Arber et al., NP 1978)
- Is it possible to read the genetic program of the whole organism? (Human Genome Project etc., 2000)
- Can we achieve specific modifications of the genetic code? (GMO, embryonic manipulations, Mello et al. NP 2006, 2007)
- Can we resume full control over such modifications? (???) – pauses for thinking.

Further related Nobel Prizes: Physiology or Medicine: P/M 2009: telomeres, P/M 2008: viruses, HIV, reverse transcription, P/M 2007: genetic modifications, P/M2006: RNA interference, P/M 2002/3: cell cycle, cell death – genetic regulations, P/M 1997: prions, P/M 1995: genetic control of early development, P/M 1993: gene splicing, P/M 1992: protein regulations by phosphorylation, P/M 1978: restriction enzymes, F/N 1974: structural and functional organisation of the cell, P/M 1972: structure of nucleic acids, P/M 1933: chromosomes,

Chemistry 2009 – details to ribosomes, C 2008 – GFP, C 2004 – protein degradation, C 2002 – biological macromolecules, C 1993 – protein studies, C – 1989 – catalytic characteristics of RNA, C 1980 – biochemistry of nucleic acids, recombinant DNA, DNA sequencing.

Along with classical exhibition panels, the information will be presented also in the puzzle form (pexeso), where the visitors can combine Nobel Laureates – their discoveries – and year of the NP based on the knowledge obtained in the exposition. The plastic puzzle model will be performed by polygonoid objects fixed on an abacus-like grid. Such approach is very suitable for families and groups and opens a space for cooperation.

The next interactive model will be “the sequencing workshop” – reading of the genetic code. This part will be prepared in form of a computer program and also plastic models of nucleotides with fluorescent labels (colour of the plastic) and modified (stop) nucleotides. Using this model the visitors will see the application of knowledge on the complementarity principle and DNA replication in broad practical use.

The visitors will also get a chance to express their opinion in a questionnaire on “wishing to know or preferring not to know their genetic code” after considering the advantages and disadvantages presented in the exhibition. Thus, the visitors can formulate their conclusions drawing from the scientific data (as the researchers do).

After visiting this module of the Mendelianum Visitor Centre and accumulating new knowledge mediated in a clear and attractive way, the visitors can move to the laboratory of molecular biology.

The molecular laboratory will be established in a classic realistic style. The equipment was selected based on experience of the research team with the target group of the project directly in research laboratories (work with high school and university students, educative courses, open door days etc.) so that they present highly modern methods and can be shared by more people at the same time.

As molecular biology often represents a work with solutions in extremely tiny volumes, the visitors can try to pipette culture media, chemicals for nucleic acid isolations etc, all in very small (microliter) volumes. The next step will be the work under sterile

conditions, crucial for molecular procedures particularly due to contamination risks. Therefore, one part of the laboratory will be occupied by a flow box so that the visitors can mix for example a PCR mixture (polymerase chain reaction). To demonstrate the complete methodical procedure, a simple PCR cyclor will be installed in the lab. Into the cyclor, the visitors can insert their test-tubes prepared in the flow box. After that the visitor can get acquainted with results of the reaction and their interpretation (e. g. at the example of the homozygote and heterozygote in relation to diseases). Example results of PCR reaction as well as advanced methods as RT-PCR and PCR Arrays will be available in the lab exposition.

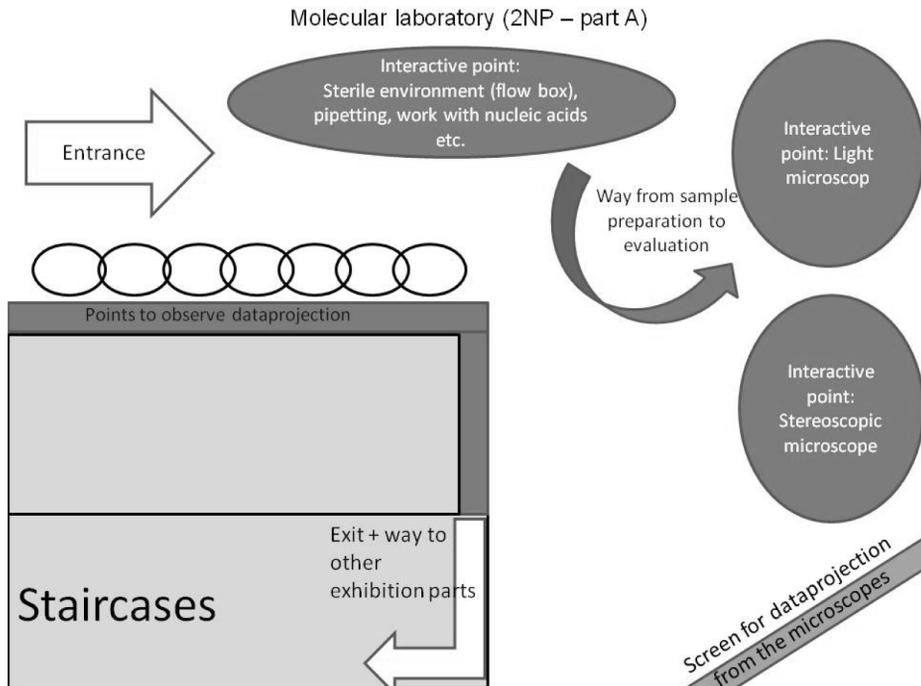
In the second part of the laboratory, a conventional microscope (to evaluate slides) and stereoscopic microscope (to evaluate 3D objects) will be installed. Both microscopes will be interconnected with a data projector to demonstrate phenomena, their description and sharing the findings with other visitors. There will be samples prepared for both microscopes to demonstrate different cells, tissues, staining (nuclei, DNA visualisation etc), cell variability (gene information realization, differentiation process, cell division (cell cycle), apoptotic cells (genetically programmed cell death) and many others. In the stereoscopic microscope, the visitors get in touch with several genetic models (fixed), e. g. yeast, *C. elegans*, *Drosophila melanogaster*, and also mammalian embryos (genetic control of early embryonic development) and many other samples obtained from cooperation with research institutes.

Non-hazardous, blind samples and chemicals will be used in the Centre (such as coloured water etc) that are sufficient for demonstrating the principles and represent no risk in contact with pipettes of the visitors. Real accessories will be used during specialized events demonstrating molecular-biological methods and popular actions by experts in the Mendelianum Visitor Centre.

Despite the fact that the molecular laboratory is not the dominant part of the Centre (that are the 3D models of expression and related knowledge concerning interesting and recent discoveries and their clinical and other relevancies of general importance), the laboratory creates a very important item. In the laboratory becomes synthesized the know-how /skills obtained during the gene expression and “Nobel” discovery stories, which can be directly applied in the practice and for adequate research conclusions and scientific relations. The theoretical knowledge developed via practical skills is an essential combination functional in the reality of science and research. Theoretical background allows proposal of correct experimental design, methodical skills its realization and joint together lead to adequate conclusions.

After the laboratory module of the exposition, the visitors can continue in the touring of the Centre or leave it through the Mendel’s Brno photography section. Mendel’s Brno is a bonus of the Mendelianum Visitor Centre to its visitors thanking them for visiting Mendel’s Brno. In photographs with accompanying texts the visitors may follow in the footsteps of Mendel as a scientist, student, teacher, pastor, member and official representative of the Agriculture Association and a member of the Nature Research Society where he published his discovery, flower, vegetable and fruit exhibit organizer but also a president of the Moravian Mortgage Bank. Maps showing historical places relating to Mendel’s activities in Brno will be at free disposal for the visitors who wish to make a sightseeing tour.

The visitors may decide to spend more time in the Visitor Centre. They can see **the Mendel Laboratory**. On the way to the laboratory, the visitors go through the former historical meeting room of the Agriculture Association where Mendel presided over its



meeting and was active as a member of its central committee and worked in its many scientific sections including horticulture, natural science, beekeeping and agriculture. The Agriculture Association gave its approval with the formation of the Nature Research Society whose statutes point to its goal to investigate the structure of the matter and its phenomena. The exhibition represents a very important motivating component, showing the person of J. G. Mendel in a wax figure in priest dress in the role of the discoverer and a high school professor of physics and natural science inviting visitors and students into the attractive world of genetics that he discovered.

The Mendel laboratory offers a methodological reconstruction of Mendel’s research into plant hybridization and his discovery. Even now Mendel’s achievement evokes high admiration of scholars worldwide. It is admiring how Mendel has changed the thinking of mankind. The visitors can try artificial fertilization in pea plan using the pea flower blossom model in realistic but enlarged size. Here, the visitors will understand why Mendel was afflicted with eye ailment when castrating and pollinating hawkweed blossoms using contact lenses.

The visitors can also try to evaluate the result of a random hybridizing experiment by calculation of segregation ratios of round vs. cubic pea seeds in the hybrid’s progeny. The pollination process will yield a hybrid’s progeny based on random combination. The visitors will draw conclusions from the “experiment”.

In the adjoining baroque summer terrace some of Mendel’s experimental plants will be shown, e. g. Hieracium. The view from the terrace into the beautiful courtyard surrounded with historical architectural treasures and the Merkur statue evokes the spirit of Mendel’s days.

After visiting the Mendel Lab, the visitors will head to the module presenting the recent achievements of science and research made in Brno regional laboratories with direct links to international cooperation. In the Historical Hall discoveries by outstanding personalities of science and research from Brno and South Moravian region will be presented. During lectures and other events, such as Mendel Forum, DNA Afternoons and others the Historical Hall will be a unique place for meetings and discussions of students with important scientists. The Historical Hall will demonstrate the importance of communication and team cooperation (science without barriers) and the fruitful connection of theory and practice. For this reason, the architectonic concept of the Historical Hall has been proposed as an assembly hall which can be easily rearranged as a room for demonstration of laboratory techniques. The laboratory will be used for practical seminars and popular scientific activities showing laboratory techniques for an approximate number of 150 participants (as e. g. on the DNA Day, April 2008).

In addition, the Historical Hall will be used for projection of movies related to Mendel, and genetics (e. g. the new popular scientific documentation Mendel as a Permanent Challenge, CZ TV 2010) and virtual excursions to laboratories obtained on the basis of cooperation with other research institutions.

To introduce regional science in the context of the CR, Europe and the world, a further genetic story line will be presented that accompanying the visitors in the direction to the exit of the Centre. The thematic content of this module is based on cooperation with project consultants from research and education institutions. Proposed are not only interesting topics but also hot issues of the present day.

Genetic program in the human life attracts general attention and is of interest of everybody.

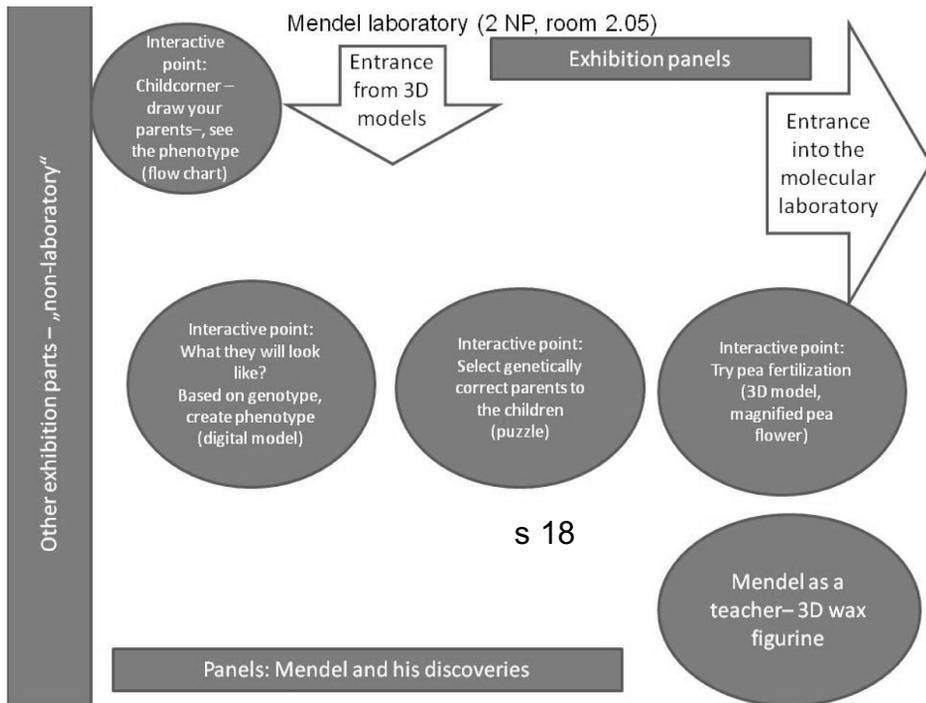
- Genetic programs of healthy and cancer cells
- Stem cells, their genetic programs and therapeutic potential
- Diagnostics – what can we read in the program – prenatally and postnatally
- Genetically modified organisms among us
- From genetics to physiology and pathophysiology – what is normal and what is not normal
- Genetic programs in transgenic plants
- Genetics and computer algorithms

The main goal of this module is to elucidate physiological functioning of the genetic program, to learn about prediction, diagnostics, and treatment of disease and other topics from common life.

Therefore, the results of research and science in the field of genetics and molecular biology will be introduced in context of everyday life.

To make later modifications possible, the panels will be designed in an interesting form of oval panels with marginal pressings in frames evoking historical paintings interconnecting graphically the historical room with modern science. Small show cases between the panels will allow for presentation of 3D models.

The Visitor Centre has been conceived as an entity of multi direction pathways which can be integrated and arbitrarily combined according to visitors' choice. This mosaic approach increases visitors' intake in capacity allowing for fragmenting the entire body of information and choose a personal point of interest. The genetic thematic groups will unfold in opposite directions. The story from the cell to the organism following the genetic program will display similar graphical fashion, development of an individual from two cells uniting in a zygote showing realization and correct control of the genetic program. Results of science and research will be popularized using Nobel Prize



(Physiology or Medicine) findings. Some of these topics are also investigated in the research of the Institute of Animal Physiology and Genetics CAS v.v.i. in Brno (see e.g. IF papers by Matalova et al.) and thus results of regional science in cooperation with other institutions from abroad will be presented.

- How can an adult develop from a zygote? (1995)
- How does the cell know what to do and what happens if it does it wrong? (2001)
- How does the cell get to know when to die and what happens if it does not die? (2002)
- How does the cell recognize its age and how can it grow younger? (2009)
- How can one cell give rise to so many different kinds of cells? (2004)
- How can the organisms recognize its own cells and what happens if it does not recognize them? (1996)
- How can the functional programs of organisms and their realization be modified? (2006, 2007)

After visiting this module of the Centre, visitors can go to the exit into the Bishop's Courtyard garden. Before leaving the Visitor Centre they will be offered a map prepared as a bonus to the module on Mendel's Brno. They may enter into the footsteps of Mendel and disclose historical places connected with Mendel's activity in Brno. Historical plaques are attached to some of the buildings to commemorate Mendel in Brno.

The project guarantee is Assoc. Professor Eva Matalová that integrates all elements necessary for a successful implementation of the project of popularization of science and research. First, scientific research, impact publications, international scientific cooperation etc., second, pedagogic activity (university assoc. professor); third, popularization activity (long-term activities in popularization of science in the Moravian Museum in Brno).

The basic team consists of experts from the Moravian Museum, Institute of Animal Physiology and Genetics, Academy of Science CR v.v.i. and Mendel University (project experts) in cooperation with the given consultants from further institute to cover the largest possible spectrum of the field of molecular biology and genetics.

Selected contributions of the team to popularization of science include scripts and preparation of exhibition, lectures in exhibitions or in specialized seminars for students, teachers and broad public and organization of popular-scientific conferences. Booklets, guides and other materials issued by the Mendelianum team of specialists:

Assoc. Professor Eva Matalová: Exhibitions – scenario (in Czech): Klonování živočichů – *Cloning of Animals* (1999/2000) – MZM Brno, Transgenní rostliny – *Transgenic plants* (2000/2001) – MZM Brno, Dekódování lidského genomu (2001/2002) – MZM Brno, Programovaná buněčná smrt – *Programmed cell death* (2002/2003) – MZM Brno, Ze života buněk – *From the Life of Cells* (2002–2007) – MZM Brno, co-author, Jeden kód pro rozmanitost životů – *One code for life variations* (2003–2007) – MZM Brno, co-author, Genetika a vývoj člověka – *Genetics in human development and evolution* (since 2006) – Anthropos MZM Brno

Lectures (in Czech): Matalová E. 2001: Apoptóza – buněčná sebevražda v kontinuitě života – *Apoptosis – cell suicide in the continuity of life* VFU Brno, Matalová E. 2001: Přijďte se podívat na DNA – *Come and see DNA* (lectures and practical demonstrations), MZM, Brno, Matalová E. 2002: Ze života buněk – Seznámení s buňkami – přednáškový sál Kanceláře veřejného ochránce práv v Brně, Matalová E. 2002: Ze života buněk – Běžný život buňky, Život buňky ve zdraví a nemoci, Zánik buňky (series of lectures for broad public on the topics – *From the life of cells – Introduction, Everyday life, Life in health and disease, Cell elimination*, organized in the Ombudsman building in Brno, March 2002), Matalová E. 2003: Od Mendela ke klonování, MZM, Matalová E. 2005: Mendel, nobelisté a genetika – *Mendel, Nobel laureates and genetics*, Ombudsman building, Matalová E. 2006: Organové explantátové kultury – nové poznatky a využití v biomedicině – *Organ explant cultures and their use in biomedicine*, lectures at the annual conference Mendel Forum + editor of related abstract books with ISBN. Member of editorial board of *Folia Mendeliana*, author of several popular-scientific publications (in Czech) e.g.. Matalová et al. 2008: Nobelovy ceny 21. století – *Nobel Prizes in 21st century* – ISBN 978-80-244-1948-0. Matalová et al. 2010: Věda na úrovni Nobelových cen – *Science at Nobel Prize Level* – ISBN 978-80-7305-093-1, Matalová et al. 2010: Mezinárodní možnosti – *International possibilities in science*. ISBN 978-80-7305-103-7, Matalová et al. 2010: Prezentace vlastního výzkumu a výzkum funkčních plánů organismu – *Presentation of research and research of functional plans of organisms*. ISBN 978-80-7305-102-0. Author of several popular scientific articles (in Czech and English), e.g. Doubek, Matalová 2009: Nobelovy ceny za fyziologii a medicínu ve vztahu k veterinárním lékařům a institucím – *Nobel Prizes in Physiology or Medicine related to veterinary practitioners and institutions*. *Veterinářství* 3/2009: 182–187, Matalová, Doubek 2010: Vzpomínka (nejen) na Afriku Joy Adamsonové – *Memory of (not only) Africa of Joy Adamson*. *Veterinářství* 1/2010: 58–60. Popular-scientific papers in English: Matalová E. 1999: Cloning of animals. *Folia Mendeliana* 33/34: 109–113, Matalová E. 2000: Transgenic plants. *Folia Mendeliana* 35–36: 103–105, Matalová E. 2001: Decoding of Human Genome. *Folia Mendeliana* 35–36: 106–108, Matalová E. 2002: Programmed cell death. *Folia Mendeliana* 37–38: 99–101, Matalová E. 2003: The life of cells. *Folia Mendeliana* 37–38: 103–104, Matalová E. 2004: Third millenium Nobel Prize winners and their contribution to Physiology and Medicine. *Folia Mendeliana* 39: 56–60. Matalová E. 2004: One code for life variations. *Folia Mendeliana*

39: 61–65, Matalová E. 2006: Organ cultures in biomedicine. *Folia Mendeliana* 40: 53–57, Matalová E. 2008: DNA Afternoon. *Folia Mendeliana* 42–43: 98–100. Matalová et al. 2008: Mendel Forum 2007. *Folia Mendeliana* 42–43: 101–103, Matalová et al. 2008: Mendel Forum 2008. *Folia Mendeliana* 42–43: 104–107, Matalová et al. 2008: Celebrating 185th anniversary of Mendel birthday. *Folia Mendeliana* 42–43: 110–113, Matalová et al. 2008: Mendel's Brno. *Folia Mendeliana* 42–43: 117–119, Matalová et al. 2009: From Physiology to Medicine. *Folia Mendeliana* 44–45: 75–76, Matalová et al. 2009: Mendel Forum 2009. *Folia Mendeliana* 44–45: 56–58.

Dr. Jiří Sekerák: 2010 – Screenplay coauthor of a scientific documentary film *J. G. Mendel – neustálá výzva (Permanent Challenge)*, (57 min.) Awarded a prize in the International film festival TUR Ostrava 2010; 2009 – Coauthor of exhibition Darwin, located in the Anthropos Pavilion, Brno, has been awarded a prize Gloria Musealis 2010; 2009 – Author of a short instruction film *O Darwinovi po Darwinovi (On Darwin after Darwin)* (10 min.)

2009 – Author of *Virtuální expozice Mendel, Darwin a evoluce (Virtual exhibition Mendel, Darwin and evolution)* <http://www.mzm.cz/mzm/expozice/mendelianum.html>

2004–2008 Coauthor of exhibition *Kód pro rozmanitost života, (One Code for Life Variations)*, located in the Mendelianum, Údolní 39, Brno; 2007 Coauthor of a permanent exhibition *J. G. Mendel*, located in the Mendel's birth house in Hynčice; 2006 Coauthor of a permanent exhibition *Genetika a vývoj člověka (Genetics and the Evolution of Man)*, located in the Anthropos Pavilion, Brno; 2001–2009 Chief expert guarantor of *Mendel's Hynčice – A Student Science Competition*

Dr. Anna Matalová, author of the script: The scientific milieu of Mendel's discovery, exhibition in Dietrichstein Palace, Brno, 2001; Matalová A., author of the script: Gregor Mendel as author of the first model of the transfer of genetic information, exhibition in the Bishop's Court, Brno, 2000; Matalová A. co-author of the script, Johann Gregor Mendel. Mendel's birthplace, Hynčice, a permanent exhibition; Matalová A., co-author of the script: Johann Gregor Mendel and His Discovery. Permanent exhibition in the Mendelianum, Augustinian Monastery, Brno, 1978–2000 with an accompanying exhibition Genetic Aspects of AIDS and a short-time exhibit Cloning. Many booklets on Mendel and his scientific work, personality and the context of his time, articles in the daily press, journals and newsletters are not enlisted but important for their popularizing character.

The project of the Attractive World of Genetics has an excellent prognosis for sustainability because its effects reach a very broad spectrum of the target group, moreover Mendel's scientific heritage of J. G. Mendel has been still very attractive on world wide scale, and the innovative approach offers a quite new motivation dimension, the scientific discovery of J. G. Mendel has been exclusively connected with our region and has a European and global world dimension. The creative Visitor Centre will be used as a platform for a number of events related to science and society.

The interest in the results of science and research in the field of molecular biology and genetics has been increasing due to the application in medicine which is a theme concerning anyone. Knowledge of elementary molecular relationship has a practical importance to anybody in everyday life. From the point of view of ecology, genetics and molecular biology have been the topics for discussions concerning e.g. exploitation of genetically modified organisms for securing higher quality and productivity resulting from the balancing of economic views.

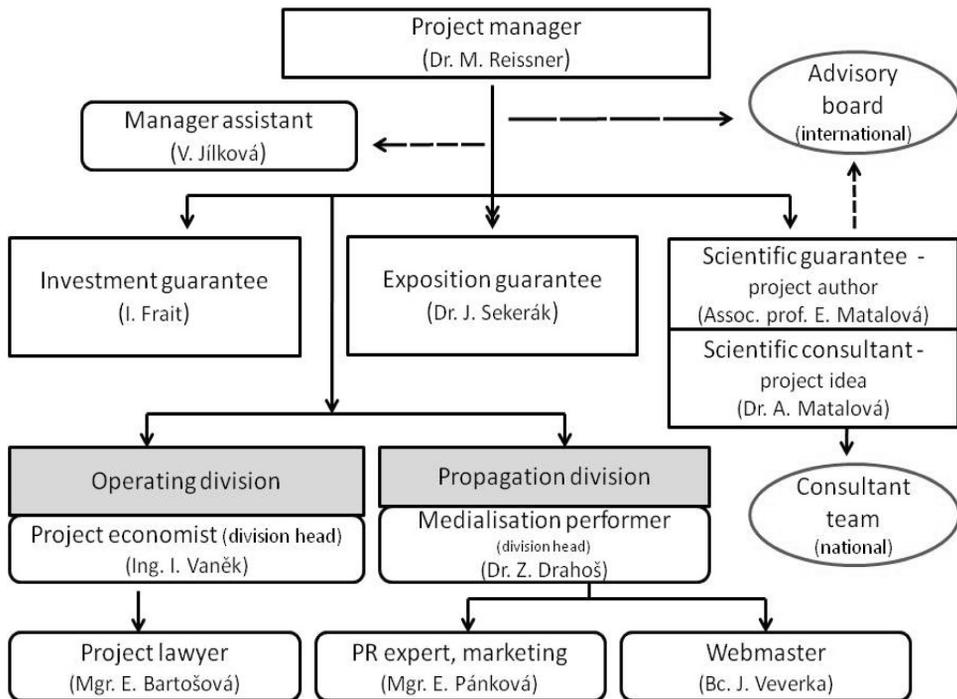
There are no limitations of the project with respect to equal chances, the project concept supports draws from one genetic code for life variations.

There is no institution or organization that may concur the project **Mendelianum – Attractive World of Genetics**. From 1962 the Mendelianum of the Moravian Museum has been the institution of world significance documenting Mendel's scientific heritage systematically. By the end of 2000 the Mendelianum of the Moravian Museum had to leave the Augustinian monastery making place to a monastic Mendel Museum that has been financially run by the Masaryk University. The monastic concept of the Mendel Museum exhibit refers to religious aspects of Mendel's catholic priesthood and abbotship with impetus on the history of the order of St. Augustine and his teaching. The monastic exhibit draws from the old data on Mendel's scientific life but the catholic revelation is new. The accompanying exhibits in the monastic Mendel Museum comply with the actual needs of the individual faculties of the Masaryk university and their economic interests. Many of them have no relationship to Mendel and genetics whatever.

The Mendelianum of the Moravian Museum follows the principal trend of accumulating archival documents from the Mendelian investigation of nearly 100 years of research performed by investigators both in CR and abroad. It was founded shortly after the fall of the Lysenkoist doctrine of the so called inheritance of acquired characters that had been imported to the then Czechoslovakia from the Soviet Union to expurgate Mendelian genetics in the fifties of the 19th century. As a result of the opposition to the Lysenkoist movement the Mendelianum of the Moravian Museum became a dissenting place supported by the geneticists from the East and the West. Many persecuted geneticists gave preference to advocating Mendel's teaching and were deprived of their academic, university or research careers. The founder of the Mendelianum of the Moravian Museum was the persecuted university teacher of genetics J. Kříženecký who was released from the Communist prison just in time to establish the Mendelianum in 1962 (Watson and Crick) after the Lysenkoist collapse. The Mendelianum exhibition show rooms were a place for Czech scientists to meet their western colleagues without asking special permission from the Communist authorities to contact "the capitalists" from the West in their "socialist" laboratories. The Mendelianum has gradually become a trade mark that has been known throughout the world.

The project Mendelianum Visitor Centre – Attractive World of Genetics built in Bishop's Court may discuss the crashes of the ideas of those days. The original museum concept of the pre-2000 activities forms the background to the new arising living museum, a place to discover, entertain, develop laboratory skills, to make knowledge to an ornament of the visitors, to formulate and share knowledge, to make genetics to a science of generating joy and contributing to a better understanding of human biological substance and possibilities of a free choice. Let our region become the country of Johann Gregor Mendel and our students his scholars. The foundation of a Mendel School, Mendel Workshop, Mendel Laboratory and Mendel Academy in the Mendelianum may produce young Mendel Embassadors disseminating the knowledge about Mendel and genetics and motivating their schoolmates across the borders of the region according to the slogan think globally, act locally. In the new Mendelianum of the Moravian Museum "Professor Mendel" will become a lasting challenge for research, provoking to thinking, questioning and doubting. Without research Mendel would never make his discovery, without experimenting there is no fruitful future.

Implementation team consists of members controlling realization of the project (project manager), investment construction (construction guarantee), financing (project economist), lawyer agenda (project lawyer), administration (project manager assistant) and propagation (PR expert, webmaster). All team members are well experienced in the fields concerning their tasks in the project.



PROJECT MANAGEMENT

The project will be controlled by the project manager. The manager is simultaneously the statutory representative of the applicant with great activity in the project realization. Project guarantees will be responsible for individual components of the project. Three guarantees are proposed for the main parts of the project: reconstruction of the building, exhibition realization, and know-how implementation. The guarantees supervise the members of the expert team, administration and extramural workers (institutional cooperation). The economist will be responsible for the project cash flow, the lawyer will be responsible for legal questions and correctness of all taken measures. The internal control will be performed in work meetings, written and approved steps in the project realization process according to the scheduled time table. The continuous progress in fulfilling the task segments will be reported to the project manager and elaborated in relevant monitoring news. The progress in the project realization and its outcomes will be continuously documented also in a self contained project website.

Planning and building risk: a) documentation shortcomings (owners' relationship, reconstruction permission); b) insufficient coordination of building work; c) not catching up with the deadline of building works – delay caused by the supplier or external conditions. Risk consequences: a) in owners' relationship there is no risk because the applicant is the owner of the building; in not keeping up with the deadline of the

construction permission the risk is small and may be avoided by choosing a competent expert and his consistent communication with relevant authorities; a small risk that can be eliminated by choosing a coordinator of the construction process. The risk of the delay in supply of goods is possible and can be avoided by a choice of quality supplier and by juridical protection; the risk caused by external conditions (of elementary nature) is exceptionally possible. The insurance of the construction company and the construction site can solve this.

Technical Risk: this category comprises a) delay in finishing the construction, b) special installations as a consequence of a necessity of special solutions in equipment installation and item c) – increase in entrance prizes of construction work, instruments and equipment. Small risk part a) b) may be limited by a choice of quality supplier drawing from referees and previous work, the high risk in item c) can be eliminated especially by a qualitatively elaborated contract with the supplier with clearly stated prizing.

Juridical Risk: among these risks there belong especially a) not keeping up with the conditions of operational programme, inadequate fulfilment of project indicators, b) breach of juridical norms (tenders). Item a) is secured by a choice of high quality team of workers headed by an experienced manager (director of the institution) and substituting system structure and the competence of team members.

Organizational risk: as the project has no official partner, the highest organizational risk may come only from insufficient coordination of individual activities. As far as the scheduled time table and competence limitations will be stated immediately after the start of the project only a small, exceptional risk may occur in the form of personal compensation (substitution). Director of the institution is simultaneously the project manager therefore a high responsibility in the fulfilment of obligations of the project is expected.

Risk in the task force (human resources): this aspect comprises a possible shortage in qualified human resources, in regard to the composition of the expert and implementation teams, the risk is nearly negligible. A possible solution may lie in the structure of individual competence.

Risk on the level of users and the maintenance: with respect to the previous experience of the applicant and team members composition the risk is extremely minimal and thanks to a high institutional support most improbable. Project manager is the director of the institution, the applicant takes obligations in covering operational costs. Project sustainability from the point of view of the target group draws primarily from the fact that the project addresses a very broad spectrum of the target group, moreover J. G. Mendel has been very popular in the region (Mendel was chosen as the greatest citizen of Brno in a public inquiry of DNES daily newspaper in 2008) and has been actual also on the world scale, the innovative approach opens a completely new motivation aspect, moreover the furnished rooms will house a series of further events of popularization of science and research that up to now had been arranged in provisional conditions and its activities will have a good chance to grow in number and quality.

The Visitor Centre will be located in an attractive cluster of historical buildings in the centre of Brno city. This location has got a perfect position from the point of view of accessibility and attendance. The historical complex creates a harmonic link of the Mendelian past and the present development of genetics and molecular biology, continuity with Mendel's scientific work.

It was in Bishop's Court in 1965 when genetics was presented for first time in a Czechoslovak exhibition after the fall of the era of Lysenkoism that started in the fifties

of the 20th century. Individual section of plant genetics, animal genetics and human genetics showed practical achievements of genetics in agriculture and medicine.

The Bishop's Court housing the Visitor Centre will relate to the historic residence of Mendel's Agricultural Association and its sections of horticulture and natural science attracting Mendel's attention into hybridizing experiments with ornamental plants in order to achieve new colour varieties that initiated his experiments with peas.

Analysis of the hinterland of the place is very good. On the basis of the flow of persons in the area of the visitor centre located directly in the centre of the town and the actual attendance of the neighbouring objects the hinterland region comprises:

- Town of Brno. Time of reaching the place by car is within 30 minutes (70 per cent of visitors), this concerns 400 thousand inhabitants of Brno-city
- Region of Brno: time of reaching the place by car is within 60 minutes (20 per cent of visitors)
- South Moravian region: time of reaching the place by car is over 60 minutes (10 per cent of visitors)

Based on the recent visit rate of the Moravian Museum, the adults represent 42 %, youth 58 %. Among the adults, 40 % are from the CR, 2 % from abroad. Youth is represented by 24 % from the elementary schools, 7 % from the grammar schools and 1 % from the universities. The concept of the Mendelianum project aims to increase the rate of grammar schools and universities as the major target group for motivation in science and research, whose attendance should achieve 75 %.

Marketing strategy of the Centre is based on communication with the target group at several levels. First, direct presentations of the Centre in regular events for the public (at the occasion of DNA day, Mendel Forum, other anniversaries and topics). Second, personal contacts outside of the Centre. Most of the expert members participate in teaching and education, at grammar school as well as university levels. Third, advertisement in journals (e. g. the monthly KAM programme of cultural events in Brno), regional newscast and press (ČTK and others). Fourth, production and distribution of popular-scientific publications, leaflets, etc. related to actual topics. Fifth, attractive presentations via multimedia website. Sixth, social networks, addressing of the target group particularly on facebook (Mendelianum – friends). Mendelianum has recently created an independent domain www.mendelianum.cz, the design proposal is under preparation by the project webmaster Mr. Veverka. Internal marketing includes particularly motivation of other MZM employees, to participate in the activities of the Centre, particularly encouragement of presentations from other departments (e. g. zoology, anthropology). The advisory board will be involved for interest stimulation to achieve internationally comparable quality.

History of the buildings, recent situation, readiness for realization (author's report – Architect Hruša&comp., Atelier Brno, s.r.o., www.hrusa-atelierbrno.cz)

Bishop's Court is a building of the Moravian Museum and is one of the most significant buildings enclosing a quiet courtyard with the dominating spires of the St. Peter and Paul cathedral in the background. The building is accessible from Muzejní (Museum Street) or from Zelný trh (Cabbage Market). Once the building was a Gothic seat of the Provostal of Brno Canonry, and in 1588 it was bought by the Bishop of Olomouc, Stanislav Pavlovsky. Italian builder Antonio Gabri then reconstructed the place

for its new owner. The changes were accomplished after 1600 under the rule of the Cardinal Francis Dietrichstein. From the oldest architectural era there remained the hexagonal tower and building with partly fair-face brickwork and narrow angular and rectangular windows. The late Gothic chapel on the second floor of the tower reveals wall paintings showing scenes from the lives of Roman catholic Saints. After the refurbishment in the Renaissance style, the building was enhanced by the archway and the one-storey arcade loggia. In 1818 the Agriculture Association made it to its seat and used it for museum purpose. In the 80s of the 19th century, the so-called d'Elvert's wing was added to the Bishop's Court building with the entrance balcony portal originating from the already pulled-down palace of the Mittrowsky family originally standing in the náměstí Svobody (Square of Freedom). From the same square, the sculptures from the Mercury fountain by Ignac Bendl was brought there in 1858, located now in the middle of Bishop's courtyard.

The reconstruction project deals with placement of the Moravian Museum Mendelianum in the present-day premises of the Moravian Museum. It further deals with modifications of the related areas. At present, the exposition History of Money in Moravia is situated in the premises selected for the Mendelianum Visitor Centre. Display rooms with the exposition of coins are located in three height levels of the exhibition hall. Individual levels are connected by a two-flight steel staircase, located in the middle, additionally built in the last century. This exhibition hall, placed in two floors, can be entered either directly from the outdoor place from the surrounding archway or, during visitors' tours, from the adjacent exhibition hall on the 2nd floor. Entrance doors on the ground-floor, from the surrounding archway are not open at present; during the tours visitors enter the coin exposition only from the 2nd floor, from the exhibition hall or from the arcade loggias. The exhibition hall selected for placement of Mendelianum is on the 2nd floor boasts of a Renaissance-style timber ceiling with paintings. Windows are wooden double-glazed, on the 2nd floor there are stained-glass windows. The stepping layer is covered with a blue carpet. The inner walls are decorated in lime-cement stucco plasterwork of a white colour.

With regards to legislation of the Building Act, no changes in purpose of use of this historical building can occur. Therefore no changes in the premises' utilisation can be realized. The exhibition function will be maintained and will be only transformed: the coin exposition will be replaced by the exposition of genetics research etc. For the newly designed exhibition, the planned construction works of the premises are proposed, according to the investor's concept, which aims to guide visitors through the main points of genetic code evolution and its use, to help them understand the basic principles. The proposed construction works deal with the transition of the main entrance, building of hygienic background for the disabled, related construction works of the surrounding areas and accessibility of the premises for the disabled by use of a platform lift, which will be further used as a vertical means of transport through the exhibition as an imaginary way of evolution from cell nucleus to cytoplasm within genetic expression.

At present, the main entrance is situated in the archway on the east façade of the building, adjacent to the south wing of the Bishop's Court. Behind the entrance door there follows a staircase to the box office. The old entrance area is not equipped with any device enabling disabled people to enter the place at the moment. The concept suggests transition of the main entrance from the archway on the east side of the building, adjacent to the north façade of the Bishop's Court. The exhibition premises of Mendelianum will become the main entrance to the building, including reception, which shall be placed on the first floor above the entrance. The present-day staircase and the ceiling on the 1st floor will be

removed. Exhibition premises on the ground-floor and on the Mendelianum floor will be vertically connected by an upper balcony, which will, when entered open a view of the Renaissance style timber ceiling above 2nd floor, which will be thus shown as a dominating art motif of the entrance area. Individual levels of Mendelianum will be connected by a hydraulic platform lift with glazed railing and with glazed side shaft walls and glass door of the entrance to the platform.

The front shaft wall will be built only up to 2.1m above the first level. The remaining part will stay free, so that visitors may observe, during the tour on the platform to the 2nd floor, an installed 3D model and, at the same time, a thematic projection on the opposite wall. The platform shall enable to stop at certain phase of projection and watch it. On the 2nd floor, the platform will allow, when blocked against vertical movement, horizontal connection as a „footbridge“ between the arcade loggia and the archway, in order to hold special events requiring mutual connection. A new straight staircase connecting first two levels of Mendelianum at the entrance to reception will be built. The height level of the proposed reception in Mendelianum is, compared to the adjacent exhibition hall embedded 1.185 m lower. Currently, at the 1st floor level, the premises selected for Mendelianum and the adjacent hall are not connected. The concept proposes an inlet in the wall between the box office of Mendelianum and the adjacent exhibition hall. The inlet will be filled with staircase, connecting different levels. Entrance from reception into the exhibition hall on the 1st floor for disabled persons will be carried out by use of mobile stair climber. With regards to historical preservation rules, another platform lift cannot be introduced. The stair climber will have its own storeroom, under the staircase, accessible from the toilet vestibule. The present toilets will be removed and replaced by new hygienic equipment in the place of the present entrance corridor to toilets. Two cabins are proposed separately for men and women with separate entrances. Both cabins are designed as to enable the use by the disabled. Position of the men's toilet will require a new inlet to be made in the wall in the corridor room between box office and exhibition hall.

Construction works in the building are divided into two parts. Part A involves the entrance areas and exhibition premises of the Mendelianum with a small lecture hall on the 2nd floor and building new toilets on the 1st floor. Part B concerns modifications in the north wing of the building – namely repairs of staircase and construction works in the historical hall.

During the construction works in part A, the entrance areas in front of the newly designed entrance into the Mendelianum will be refurbished. Exterior paving in front of the entrance will be replaced by new stone large-format paving. The present paving will be replaced also on the terrace in front of the present entrance. Further, the historical stone portal will be restored in front of the entrance to the Mendelianum.

In the Mendelianum exhibition hall and the reception removal of the present steel staircase structure will be carried out. And also part of the linear wall 300 mm wide will be removed between the rooms. The present floor will be changed. For the purpose of reconstruction, new reinforced concrete foundation structures, which will carry the load of the designed one-flight staircase and new structures of the platform lift frame. New floor structures will be performed including concrete screed reinforced by mesh panels of hydroinsulation and thermoinsulation. The stepping layer of the floor will be made of large-format natural limestone paving, 20mm thick. The floor socles will be also made of natural limestone 20 mm thick and with the front side plastered. (socles 80 mm high). New staircases will be made of reinforced concrete monolithic slab with reinforced

concrete steps, including hydroinsulation. The staircase steps and risers will be tiled with natural limestone. The present ceiling structure between 1st and 2nd floor will be removed in this premises. New monolithic reinforced concrete slab 150 mm thick will be installed and embedded in the surrounding walls. Indoor plasterwork will be removed and replaced by new Venetian stucco plasterwork. The present windows will be renovated and equipped on the inner front side with roller blind with art motif of thematic description of DNA module .

In the area designed for the hygienic premises and storeroom of stair climber the present floors and partitions will be removed. For better access to men's toilets, an opening will be made. New partition walls will be made of ceramic brick slips. New cement-limestone stucco plasterwork will be also included. Walls behind furnishings will be tiled with large-format natural limestone slabs including installation of floor socles in the front side plastered. The present water, sewage water and heat piping will be removed and replaced by the new ones. The present hot water heating radiators will be replaced by new panel heaters. Inner doors will be made of wood furnished with veneer. The door's height 2 200 mm. Door jambs should use wooden frame structures and fittings with hidden hinges. The present windows will be also renovated.

In the Mendelianum exhibition hall new Venetian stucco plasterwork will be made as well as restoration of the present windows and doors. The window will be equipped with roller blinds with art motif of DNA module. The floors are also designed with stepping layer made of large-format natural limestone including floor socles in facing side plasters. Railing will be made of hardened glass panes with hidden embedding, which will be newly designed in the ceiling structure. Special care will be paid to restoration of the present wooden timber ceiling from the Renaissance times. New hot water heating piping will be installed. The piping will be hidden in channels inside the wall. Also, the rooms will be equipped with new high-current and low-current wiring including new wall and ceiling lights. Premises of Mendelianum will be further equipped with electronic signalizing device.

Mendelianum exposition premises will be enlarged with rooms containing the exposition of coins. Laboratory will be equipped with roller blinds and the present windows and doors will be renovated. New cement stucco float-finished plasterwork will be made in the room. In the terrace room and the arcade loggia the present floor paving will be removed and new limestone large-format paving will be fitted.

As a part of delivery within the reconstructed part A the rooms will be equipped with an atypical platform lift. It is a hydraulic platform lift of inner dimensions 2 400/900 mm. The lift shaft has dimensions 2 500/1 050 mm. Slide rails of the platform will be embedded in the surrounding walls. The platform structure will be carried up by consoles from rails. The platform will be equipped with security movement sensors. The stepping layer of the floor will be made of natural limestone. The lifting platform will be on the lower side furnished with roller blind of textile with thematic art motifs of the DNA module. During the platform lifting to the 2nd floor, the textile with DNA module will be rolling out of the roller blind embedded in the floor, which will be on the other end embedded in the lower part of the platform. Within the placement of the platform lift, landing from reinforced concrete slab 250 mm thick will be made. The landing will be embedded 250 mm lower compared to present floor. The glass shaft walls and platform railing will be made of hardened glass panes including all-glass doors and fittings. Doors will be controlled electronically. The platform will be operated by a controlling system, with an option of programming thematic tours according to thematic projections on the opposite side. The front glass shaft wall will be built only up to 2 100 mm high above the floor, in order to reduce light reflection disturbing projection on the opposite side.

Pat B comprises the premises, which enlarge the present-day exhibition areas of new exhibition areas of Mendelianum and will be also used for purposes of Mendelianum.

In the historical hall conference room regrinding of the present parquet floor including oiling will be done. The present windows and doors will be renovated. Restoration of wooden timber ceiling will be a part of the reconstruction. The present plasterwork in the hall will be removed and will be replaced by new Venetian stucco plasterwork. As a part of interior equipment there will be two wooden round-shape polished folding tables. Each table will be accompanied by chairs for 16 people. New cement stucco float-finished plasterwork will be done. On the wooden staircase steps and risers will be reground and oiled. As a part of staircase renovation, the present wooden lining ledge between stairs and wall will be replaced with new wooden ledge impregnated with oil. Rooms will be equipped with new wall and ceiling lights, including high-current wiring.

All designed construction works do not require EIA assessment. The designed modifications are fully in accordance with regulation 268/2009 issued 12th August 2009 on technical requirements of buildings and with regulation 398 issued 5th November 2009 on general technical requirements allowing accessible using of buildings.

All reconstructions will be performed in the applicant's property therefore no site authority decision is necessary. The contractor for construction works will be selected based on official selection procedure (tender) according to the rules of the Operation Program VaVpI and the documentation with technical parameters. Implementation team has got broad experience with building control. Possible risks have been defined and possible solutions proposed. An integrated part of successful realization is also the selection of skilled team members in project administration (juristic and economic aspects).

To make the new Mendelianum Visitor Centre a living place, the visitors shall get directly into the middle of research. The molecular laboratory will be equipped by devices which correspond to the current use in real labs but are also attractive for the visitors (the selection was done based on experiences of the applicant team form e.g. Days of open door in research institutions, education and popularization activities).

The following components were selected:

- flow box: flow box has been designed for the work with genetic material to avoid any contamination of the samples (here the visitors will try and understand the work under sterile conditions), the box will also serve for practical pipetting necessary to perform real molecular methods (such as e.g. PCR mixture)

- PCR cyclus: to continue the work started in the flow box, the visitors can try the complete method of PCR, therefore a simple PCR cyclus will be one of items in the exposition – the visitors will understand principle of polymerase chain reaction (Nobel Prize in Chemistry 1993)

- centrifuge: for DNA isolation (using both, classical and modern methods) a high rotation speed centrifuge is necessary – again, the visitors can try by their hands how to perform centrifugation, moreover, the equipment will be used during activities showing real molecular methods (under supervision)

- electrophoresis: classical equipment, but very illustrative to show DNA detection after PCR, separation of DNA fragments, fragmentation after restriction (in connection with sequencing principle + explanation of automated evaluation by sequencers) – Nobel Prize in Chemistry 1980

- microscopic unit: the set of classical light microscope, fluorescent lamp and stereoscopic microscope will be integrated with a camera system to digitalize, record and display results and finding on a big screen (sharing of more visitors, cooperation)



Fig. 8. Mendelianum of the Moravian Museum in the Old Brno Monastery, Mendelovo n. 1a .

Further investment involves particularly 3D models, computer and digitalization techniques:

- 3D models: these models are an important part of the 3D trip of visitors into gene expression and will be installed in the central part of the exhibition, also the person of J. G. Mendel will be displayed in 3D as a wax statue
- large screen in the 3D part of expositions: several movie sequences will be prepared to be projected during the gene expression trip (the content will be prepared in more version to make any repeated visit more attractive)
- touch screens: highly modern touch screens will be installed for interactive involvement of visitors into genetics and for games in the form of puzzles
- digital legends: digital legends enable dynamic alterations, actualization and also multilanguage approach (e.g. for schools having extended language programs and also to demonstrate “molecular terminology” based on English)
- audioguides: audioguides prepared at several level of information will be available with a possibility to dynamically alter and innovate the content.

Further investment covers common equipment in exhibitions:

- panels: panels for demonstration of genetic stories
- display cases: to display e.g. some small devices used in laboratories
- desks: hybrid conference room (Historical Hall), laboratory room, reception
- chairs: hybrid conference room, laboratory room, reception.

Fifty years ago the Moravian Museum developed plans for the reconstruction of the dining hall in art nouveau style in the Augustinian Monastery and the adjoining rooms of the former monastic kitchens for the Mendelianum was open in 1965 and became a world renowned Mendel institution.

The second phase of development of the Mendelianum is connected with the protection of the ombudsman who generously offered exhibition rooms for the Mendelianum exposition One Code for Life Variations. Dr. Motejl shared with us his conference rooms and the garden where Mendel’s experimental plants were on display including peas, beans and many Hieracium varieties.



Fig. 9. Exhibition One Code for Life Variation in the residence of the ombudsman in Brno, Údolní 39 where Mendelianum had its seat after having left the Old Brno Monastery.

Now the Moravian Museum is developing plans for a new Mendelianum Visitor Centre in Bishop's Court that will develop communication of scientists with society on modern aspects of genetics and motivate young people to study Mendel's science at university. The archival documents from one-hundred-years historical research are accessible to students and Mendelian scholars in the collection depository of the Moravian Museum Mendelianum.

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Registration number CZ.1.05/3.2.00/09.0180

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FOLIA MENDELIANA 47, 2011/2
Supplementum ad Acta Musei Moraviae, XCVI
Vychází 2× do roka

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MK ČR E 1090
ISSN 0085–0748