WELCOME BOOKLET

INSTITUTO DE INVESTIGACIÓN EN CIENCIAS DE LA ALIMENTACIÓN

2022
INDEX

1. Welcome 2
2. Location 3
3. How to get to CIAL 4
4. Organization, administration, management and support services 5
5. First steps at CIAL 8
6. Some useful information 9
7. Safety and Health at work 10
   a. General risks 10
   b. Laboratory hazards 19
1. WELCOME

The Institute of Food Science Research (CIAL) is a mixed Institute, participated by the Spanish National Research Council (CSIC) and the Autonomous University of Madrid (UAM), and it is part of the International Campus of Excellence UAM+CSIC (CEI, UAM+CSIC).

Our objective is to build up scientific knowledge on foods and their influence on health, taking into account the variability of the human response, and looking into the action mechanisms, as well as studying the risk factors associated to illnesses, including food safety issues, and evaluating consumer acceptance. The research developed at CIAL in the fields of food science, nutrition and health contributes to better innovation, added commercial value, and well-being of the population.

More than a hundred people work at CIAL: CSIC scientists, University professors, post-docs, PhD students, laboratory technicians, administration and support personnel. In addition, CIAL accepts more than 100 students each year to do laboratory training and research for BSc and MSc degrees.

The purpose of this handbook is to make easy your first days at CIAL, so you can integrate in our community fast and efficiently but, above all, we want to make your stay safe for you and the rest of people working at the institute. The main intention of this Plan is to minimize risks.

Welcome to CIAL and greetings from the Director’s team.

CIAL Team for Health and Safety at Work:

Elena Berciano
Juan Antonio Colmenarejo
Josefina Rascón

With the collaboration of:
Josefina Belloque
2. LOCATION OF CIAL

CIAL premises opened on 2011, and are located at UAM Campus of Cantoblanco, c/ Nicolás Cabrera, number 9. Please find it on the upper right corner on the Campus map.

https://goo.gl/maps/5sbs36K7NCp

UAM Campus

Download the map by clicking on the image
3. HOW TO GET TO CIAL

By car

Coming from Madrid: Take M-607 (Madrid-Colmenar Viejo): Exit 15 (Valdelatas - Vía de servicio - Universidad Autónoma) or Exit 17 (M-616 - Alcobendas - Universidad Autónoma).

Coming from Alcobendas: Take M-616, Exit “Universidad Autónoma”.

GPS Coordinates: 40.549483,-3.688856

By train

- Get off at Cantoblanco Universidad station. For train schedules, please check here:

By bus

Bus lines that stop at Campus:

- Line 714: Plaza Castilla - Cantoblanco - Comillas
- Line 827: Alcobendas - Cantoblanco
- Line 827A: San Sebastián de los Reyes - Alcobendas - Cantoblanco
- Line 828: Campo de las Naciones - Aeropuerto - Cantoblanco

More information:

4. ORGANIZATION, ADMINISTRATION, MANAGEMENT AND SUPPORT SERVICES

The following figure summarizes the organization of CIAL:

At present, there are seventeen research groups working at CIAL, distributed in three departments: **Bioactividad y Análisis de Alimentos**, **Biotecnología y Microbiología de Alimentos**, and **Producción y Caracterización de Nuevos Alimentos**. In addition, CIAL counts on unique infrastructures and equipments, such as the Novalindus Platform, the Metabolomics Platform, and the Dynamic GI Digestion Simulator (simgi®).

CIAL also counts on scientific and technical services offered by the **Bioanalytical Techniques Facility** (BAT):

- **Responsible person:** Torsten Paarup
- **Location:** Lab 4G (4th floor)
- **Opening hours:** 8:00 a 15:00 h
- **Phone number:** 910 01 78 05
Offices for Administration and Management:

Personnel and Travel:
- Responsible person: Macarena López
- Location: Office “Secretaría de Dirección” (Groundfloor)
- Opening hours: 8:00 a 15:00 h
- Phone number: 910 01 79 01

Payments:
- Responsible person: Esther García
- Location: Office “Administración” (Groundfloor)
- Opening hours: 8:00 a 15:00 h
- Phone number: 910 01 79 04

Purchases:
- Responsible person: Juan Antonio Colmenarejo y Leocridia García
- Location: Office “Unidad de Compras” (Groundfloor)
- Opening hours: 8:00 a 15:00 h
- Phone number: 910 01 79 00 ext: 979 / 910 01 79 00 ext: 985

Projects and Contracts:
- Responsible person: Isabel Muñoz y Josefina Belloque
- Location: Office “Administración” (Groundfloor)
- Opening hours: 8:00 a 15:00 h
- Phone number: 910 01 79 60 / 910017934

Computing and TICs:
- Responsible person: Jesús Prados
- Location: Office “Unidad de Informática” (Groundfloor)
- Opening hours: 8:00 a 15:00 h
- Phone number: 910 01 79 58

Health and Safety at work:
- Contact person: Juan Antonio Colmenarejo
- Location: Office “Unidad de Compras” (Groundfloor)
- Opening hours: 8:00 a 15:00 h
- Phone number: 910 01 79 00 ext: 985
**Support Services:**

**Maintenance and Repairs:**
- **Location:** beside the pilot plant
- **Opening hours:** 8:00 a 18:00 h
- **Phone number:** 910 01 78 20

**Reception Desk:**
- **Location:** main access to the building
- **Opening hours:** de 8:00 a 22:00 h
- **Phone number:** 910 01 79 00

**Security:**
- **Location:** beside the reception desk
- **Opening hours:** de 22:00 a 8:00 h
- **Phone number:** 910 01 79 00

All administrative units and support services depend on the Administration Manager.
5. FIRST STEPS AT CIAL

In order to become part of CIAL, you must start doing the administrative arrangements below, at the Office “Secretaría de Dirección” (Ground floor)

- We will collect your personal information and upload it at the database of the Institute. The documents required for each case will be signed. All information and documents will be kept safely at the CIAL archives for personnel.
- If needed, we will provide you an ID card to have access to the Institute. If you need to have access to the P2 laboratories, the authorization should be arranged by the person responsible of the P2 laboratories.
- A new e-mail address will be created for you, if justified.

The Institute applies good research practices, which are compulsory to all personnel, in order to provide scientific transparency and integrity. In particular cases, you may be asked to sign a non-disclosure agreement with the research group you join.

Any person that starts working at CIAL must receive adequate training on the use of the instruments, elements and tools that will be used for her/his activity. You may have to attend some courses related to your activity, and you will be required to follow the measures implemented for safety and risk prevention.

Soon after your starting date at CIAL, you will get a message from the team in charge of Safety and Health at CIAL, in order to set up a date for a short informative session on this matter. This session is compulsory.
6. SOME USEFUL INFORMATION

- CIAL organizes courses, seminars and activities, which are announced by email, boards, web page or social networks.

- The persons responsible for the Bioanalytical Techniques Facility (BAT) teach some courses, as follows: Introduction to common instruments, Authorization to P2 laboratories, and Verification, calibration and care of pipettes.

- On the ground floor, there is an area equipped with microwave oven, fridge, and food & drink vending machines. This is the only area where food and drink is permitted. This area must be clear at 4 pm, in order to facilitate cleaning.

- Wi-Fi keyword can be obtained from Reception and/or from the “Unidad de Informática” at the ground floor.

- Access to CIAL during weekends or night time is limited. You are prone to look into the rules applied and you can ask for authorization (at Recepcion or Secretaría de Dirección).
7. SAFETY AND HEALTH HAZARDS

a) General risks

Basics

Hazard prevention at workspaces is a legal requirement. Creating a healthy, safe and nice environment depend frequently on our ability to take decisions in particular situations. All of us are responsible for it.

It is necessary to apply prevention measures in all the tasks that we perform for our activity. The education in prevention must become part of our routine work, because our and our colleague’s health and safety are very important. We can avoid many hazardous situations just by maintaining acceptable levels of ORDER and CLEANNESS, by keeping tidy the useful material and removing the useless stuff.

Please, be aware of special situations that may put you at risk, such as allergies, a handicapped condition, pregnancy or lactating period. Please communicate these or similar conditions to take measures. (Confidentiality is granted)

We all should be alert to any risky situation. In such case, you should give notice of it, and give a warning, even though you and your work are not affected by it.
**Screens for data visualization**

It is of particular importance to pay attention to the prevention measures that should be taken when working on screens, due to the long time that we usually look at them. We have to take care of our body position, the right light source and the following:

- Do few exercises of muscle relaxation.
- Take a 10 min rest every 2 hours.
- Adjust adequately the position and angle of the screen.
- Clear your desk in order to leave space enough for forearm support when you use the keyboard and the mouse.
- Use your seat to provide back support.

**Handling of heavy objects**

Many muscle and joints problems can be prevented if we know and apply some basic concepts on handling heavy objects.

The skeletal muscle related problems affect 73.9% of workers in Spain. Heavy objects are considered here those objects that weight more than 3 Kg and less than 25 Kg (or 15 Kg in small persons). If you follow the advices below, you can prevent many muscle and joints problems:

- The back is the most vulnerable part of the body to suffer from injuries due to weight handling operation.
- Keep your back straight and flex your knees when you are lifting a heavy object.
- Do not twist your body when carrying heavy weights.
• Keep the heavy object as close to your body as possible.
• Do not hesitate to ask for help if needed.
• Use the trolleys available at CIAL to carry heavy objects.

Emergencies

If you need medical assistance, it is recommended:

• During normal working hours (9-14h) you can go to the Campus Medical Center, located at the ground floor of Plaza Mayor (besides the drugstore). Please, call first.
• Off the working hours, you should go to a Public Medical Center or Hospital. In case of emergency, call 112. Afterwards, you must report the accident to the CIAL Team for Safety and Health at work.
• There are some defibrillators near CIAL:
  o CBM Severo Ochoa.
  o IFT-ICMAT.
  o Escuela Politécnica Superior.
  o Campus Medical Center/Pza. Mayor.
Important phone numbers

- UAM Campus Medical Center (M-T 9-17h; F 9-14h) ........ 914 974 444
- CSIC Campus Medical Center (9-14h) ...........674624072 y 674624070
- UAM Health Care Unit ........................................... 91 497 4008/ 7651/ 8785
- CSIC Health Care Unit.................................................. 915 681 32/33
- CAMPUS Emergency Mobile Unit (9-14h).............. 606 911 000
- Toxicology Info ............................................................ 915 620 420
- Emergency................................................................. 112

IN CASE OF EMERGENCY

CIAL counts on an Emergency Procedure: If you detect an emergency, you should call Reception (900), so they can contact the person in charge of evaluating and managing the emergency. You should communicate the emergency clearly and precisely, by indicating the following: What happened, where and how. Make sure you hang up after the call.

In case of:

- Hearing the alarm sound in a continuous mode (please, stay with someone that understands the Spanish messages):
- Indication of the emergency personnel identified with reflectant vests (yellow/orange):

  You should move out immediately.

If you have to leave the building:

- If it is a fire announcement, close the doors and leave immediately. If it is a bomb threat, please open the windows and doors, and take your belongings with you. If it is a confinement advice, stay calm in the indicated place and wait for instructions. Stay with someone that understands the Spanish messages
- Follow the indications of the emergency personnel, or the signs for the closest emergency exit: “SALIDA DE EMERGENCIA”. You must know in advance the way and rules for evacuation from your working spot.
• Position yourself with the other persons in a line at your right hand side, in order to facilitate the access of the emergency action teams.
• Do not stop if you see the anti-panic doors closed, open them if you need.
• Do not run, do not stop and do not get back to fetch something or someone.
• Do not use the lifts.
• People with mobility limitations must leave last and should be accompanied.

Once you have left the building, go walking to the Meeting Point and follow the indications of the responsible person with reflecting vest.

Location of the Meeting Point on the walking path at the roundabout in the cross of Bertrand Russell and Francisco Tomás y Valiente streets.
Evacuation map

In order to facilitate evacuation, you should know in advance what is the closest exit that you should use to leave the building from your working place.

Basement floor (-1)
Ground floor (0)
1st, 2nd and 3rd floors
4th floor
b) Laboratory hazards

Shared equipment

CIAL has equipment that can be used by any worker at CIAL. It is distributed on the fourth floor of the building and the pilot plant. When you use this equipment, you assume and accept the following rules:

1. Only users that have received the appropriate training will make use of this equipment (Course “Introducción a equipos comunes” and/or “Autorización a P2”). Ask for these courses in English.
2. If you have any doubt on how to use the equipment, you must ask the technicians of the BAT Unit (extension: 805, 806, 807, 808; wireless: 861, 864).
3. In order to use the equipment you must make a reservation in the equipment logbook, registering on it your name and the phone extension of your lab.
4. The user should give notice to the BAT Unit technicians about any incidence occurring when using the equipment.
5. Do not use the equipment if it is dirty or shows discarded material from the previous user (centrifuges, scales, temperature-controlled baths, bio-safety hut). In this case you should contact and ask the previous user to clean the equipment and notify the incidence to the BAT Unit.
6. The user will make sure to leave the equipment clean after use.
7. The user will make sure to leave the equipment OFF after use.
8. In particular equipment, it is established that the users take part in the cleaning procedures of the equipment, activity that will be registered in the cleaning timetable.

If the user does not follow the above rules, his/her authorization of using common equipment may be removed.
Shared refrigeration and freezing chambers.

Refrigerated chambers at 4ºC are located at the west wing of the building, floors 1st, 2nd and 4th. The freezing chamber, at -20ºC, is located in the 3rd floor, also at the west wing, right before the access to the overpass.

You must follow the rules:

- The material in the above chambers must be clearly identified with the name of the responsible person and the phone code number. If it is small material, such as tubes, reagent containers, tube racks, etc., the user must store them together in a box clearly labeled and identifiable. The storage area of the chamber is limited by the space assigned.
- Do not store material that is not in use.
- Do not leave material on the floors close to the chamber.
- Safety measures to follow when using the chambers:
  - All chambers can be opened from the inside by an opening system that can be activated anytime.
  - In case the alarm goes off, the technicians of the BAT Unit or the maintenance personnel should be notified.
  - Wear appropriate clothing, and protect your hands and other body parts to prevent cold/ice injuries. Shoes must have insulated and anti-slippery sole.
  - Minimize the time staying in the chamber.
  - When using the -20ºC chamber for doing a work for more than 5 minutes, it is recommended to be accompanied by someone else. Otherwise, tell other person at the lab about your action. If long working times are required in the chamber, it is recommended that each 45 minutes you take a rest of 15 minutes out of the chamber.
Safety at the laboratory

The safety at the lab must be a major issue while working. A safe environment prevents injuries to personnel and harm to materials, while contributing to decrease the environmental impact.

Safety is a responsibility of all of us, and it is based on the respect for each other and on observing the safety rules in each laboratory, as well as following general protocols for safety at work.

As general safety and hygiene rules in the laboratory, it is indicated:

- In the lab it is required the use of a white coat, with long sleeves, and buttoned (including cuffs). It is not permitted to wear the coat in the areas destined to rest, lobby, class rooms, offices and toilettes. Coats will be washed in-house, by leaving them in the basket located in the dressing room, Basement (-1) floor.

- Everybody must clean their hands when getting in or out of the lab, given there was a previous contact with a chemical/biological product.

- Eating and drinking is forbidden in the laboratories, class and meeting rooms.

- Long hair must be tidied up, and accessories or clothes that can get hooked (e.g. bracelets, piercings, chains, rings) should be avoided.

- The laboratory must be kept clean and organized. Spills must be immediately wiped, even the small ones.

- The laboratory work will be carried out following safety protocols.
• Individual protection equipment (EPI) must be used when the working conditions require it, and it will be supplied by the person responsible of the lab.

• It is not permitted to work on non-authorized activities. It is not permitted working off hours without written authorization.

• Each laboratory counts on the following safety elements: extraction hood, safety cabinets. Emergency shower, eye shower, first aid cabinet and fire extinguisher are located at the aisle.

Handling of Compressed Gases in the Lab

CIAL counts with an installation of compressed gases that must be used when these type of gases are needed. Only occasionally, in justified operations, and only for the time strictly needed, compressed gas bottles will be permitted in the lab. Bottles should be safeguarded by securing them to the wall with a chain.

The following safety measures should be taken into account when handling gas bottles:

• The valve will be closed when the bottle is not in use.
• Bottles will be always far from sources of heat (ovens, sunlight...)
• When work with the bottle is finished, the valve should be closed, the pressure released and the manometer verified (it should be at 0).

In case of a leak in the gas line, even a small one, you must close the bottle valve or the lab valve, and immediately call maintenance personnel.
Chemical risks

A laboratory is a place where we use many different chemical reagents, generally in small amounts, but frequently dangerous (toxic, flammables…). In addition, many operations are done with reagents, with the associated risk situations.

A safe use of chemical reagents must follow basic rules:

1. Read the label and pay attention to the information therein and to the Chemical Security Card (containing pictograms, H and P phrases…). It is important to know incompatibilities among reagents.
2. Use adequately the Individual Protection Equipment (gloves, protection glasses, masks…) See Chemical Security Card.
3. Use the hood when manipulating dangerous chemicals.
4. Use the hood when opening and/or manipulating compounds or other stuff that release toxic or stinking gases.
5. Do not work with explosive products in a place with a nearby heat or ignition source (sparks flames…).
6. Do never pipet with your mouth. Use an automatic pipette, a bulb or other type filler instead.
7. Every mix or solution left in the lab must be labeled appropriately, showing: Name of the product, concentration, date of preparation, name of user, and phone extension number.
8. Transfer of liquids to a different container must be done in small amounts, in a slow and controlled manner, using a beaker to avoid splashes. Transport of liquids must be done in a bottle support with handle, ensuring adequate contention in case of content release or container break.

9. Storage of dangerous chemical products will be done with criteria on chemical incompatibility and reducing the stock to a minimum.
   a. Flammable products must be stored in fire resistant cabinets RF-90, which have a vent system and are protected from any ignition source.
   b. Acids and bases are stored separately or keeping an inert product between them. Cabinet must count on a vent system and cuvettes to contain spills.
Biological Risks

Handling biological agents can involve risks for your own’s or other’s health, or for the environment. In agreement to the RD 664/1997, biological agents are classified into four risk groups. At CIAL, biological agents of risk groups 1 and 2 are used.

Risk group 1 agents do not involve health risks, and can be handled in our own laboratory always following the general rules for safety. Agents from the risk group 2 are able to cause illnesses. Working with these agents will be done exclusively in the P2 biological safety laboratories, located on the fourth floor. The P2 safety facility on the fourth floor is divided into the Cell Culture lab and the Microbiology lab. The access to these labs is restricted to personnel that has gone through adequate education, particularly the course “Autorización a los laboratorios P2”, which will be requested to the Head of the BATUnit.
Waste Management

The people working at a laboratory are responsible for waste disposal, and must:

• know the nature of the waste, its potential danger, its composition and its chemical incompatibilities.
• separate and remove wastes adequately
• develop and use safe protocols, which include waste minimization.
• identify and label wastes appropriately.
• ensure proper handling and transport of wastes, including the use of EPIs: gloves, white coat, protection glasses.

The users must contact the technicians of the Unit BAT (Phone #805) for storage of the removed waste containers and getting empty ones.

The following table shows the various categories of hazardous wastes generated at CIAL laboratories:

<table>
<thead>
<tr>
<th>TYPE OF WASTE</th>
<th>DEFINITION</th>
<th>CONTAINER</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class III - solid biosanitary waste</td>
<td>Solid wastes with a history of contact with biological hazardous material involving risks for the human health or the environment, including GMOs.</td>
<td>![Image]</td>
<td>Gloves, plates, pipette tips,...</td>
</tr>
<tr>
<td>Cutting and puncture bio-sanitary waste</td>
<td>Tools able to cut or puncture with a history of contact with biological hazardous material.</td>
<td>![Image]</td>
<td>Nails, scalpels, capillaries, slides, glass covers, Pasteur pipettes ....</td>
</tr>
<tr>
<td>Bio-sanitary liquids</td>
<td>All liquids having been in contact with biological hazardous materials. Prior to disposal, they will be inactivated with 10% bleach or in an autoclave.</td>
<td>![Image]</td>
<td>Diluyentes, caldos de cultivo o muestras líquidas que han estado en contacto con agentes biológicos.</td>
</tr>
<tr>
<td>Cytotoxic waste</td>
<td>Wastes containing cytotoxic compounds and materials in contact with them. These refers to carcinogens, mutagens or teratogens.</td>
<td>![Image]</td>
<td>Ethidium bromide, acridine orange, sodium azide, osmium tetroxide ....</td>
</tr>
<tr>
<td>Contaminated solid wastes</td>
<td>Solid material contaminated with chemical reagents or solvents.</td>
<td>![Image]</td>
<td>Spectrophotometer cuvettes, colorimetric plates, gloves, pipette tips, paper....</td>
</tr>
<tr>
<td>TYPE OF WASTE</td>
<td>DEFINITION</td>
<td>CONTAINER</td>
<td>EXEMPLES</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Contaminated glass</td>
<td>Glass items contaminated with chemicals</td>
<td></td>
<td>Glass bottles, beakers, flasks, pipettes, and any other glassware used in the lab</td>
</tr>
<tr>
<td>Lab reagents and their mixes.</td>
<td>Highly hazardous chemical products, both solid and liquid, which should not be included in the above categories.</td>
<td></td>
<td>Highly active chemicals: Alkaline metals, polymer-making compounds. Non labeled products. Very toxic products (cyanide, chromic mix...)</td>
</tr>
<tr>
<td>Halogen-solvents</td>
<td>Organic liquids containing more than 2% halogen.</td>
<td></td>
<td>CFCs (Cl4C, Cl3CH,...), Chlorobenzene, etc.</td>
</tr>
<tr>
<td>Non-halogen solvents</td>
<td>Flammable organic liquids containing less than 2% halogen.</td>
<td></td>
<td>Ethanol, formaldehyde, formamide, acetone, ethyleneglycol, hexane, toluene, acetonitrile, etc.</td>
</tr>
<tr>
<td>Laboratory solutions</td>
<td>Solutions containing hazardous components. Subcategories can be done.</td>
<td></td>
<td>Heavy metal, basic solutions, fixing, staining solutions, etc.</td>
</tr>
<tr>
<td>Concentrated acid solutions.</td>
<td>Inorganic acids and its aqueous solutions, in concentrations higher than 10% (v/v).</td>
<td></td>
<td>Nitric, hydrochloric, sulfuric acids, etc.</td>
</tr>
</tbody>
</table>
IN THE EVENT OF AN ACCIDENT

Remember to follow the sequence:

1. **Protect yourself** and those around you (use EPIS, evacuate the area if needed...)
2. **Call for help** to the lab responsible, reception (900), or emergency services (112).
3. **Help injured person.** Apply first aid if possible, and/or follow instructions from emergency services.

In case of an accident involving chemical spills, burn or inoculation with biological agents, the following protocols must be followed:

**CHEMICAL SPILLS EYES**
- 1. Flush immediately the eyes with abundant water for no less than 20 minutes
- 2. Cover the eyes with sterile or clean gauze
- 3. Do always call or visit to medical emergency

**CHEMICAL SPILLS SKIN**
- 1. Remove the source
- 2. Remove the soaked clothing
   - **CUT, DO NOT UNDRESS**
   - Do not remove anything adhered to the skin
- 3. Flush immediately with abundant water for at least 20 minutes
- 4. Cover the injured skin with sterile or clean gauze.
- 5. Do always call or visit to medical emergency

**ACCIDENTAL INOCULATION WITH BIOLOGICAL AGENTS**
- 1. Wash the contaminated area with soap and water for 20 minutes
- 2. Bleed the wound under the water tap for a few minutes
- 3. Apply hydrogen peroxide and bactericide solution (betadine/crystalmina)
- 4. Cover the area with a sterile or clean gauze.
- 5. Do always call or visit to medical emergency

**REMINDERS:**
- **Correct flushing on the eyes** may prevent permanent injuries, including blindness. Do not apply eye drops or any solution to neutralize the chemical.
- **Do exactly the same** for chemical spills on skin, even though no injured skin is evidenced, in order to avoid chemical adsorption.
- **Remember:** Collect all possible information of the biological agent or the chemical for medical assistance.

These protocols must be located on a wall with good visibility to everyone at the lab.
It is recommended to every laboratory to have a kit available for chemical spills, which will be used according to the manufacturer.