

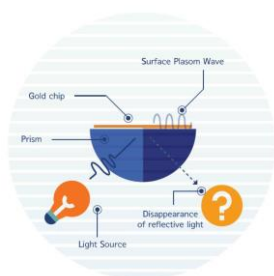
iCLUEB!O

# iMSPR Instruments

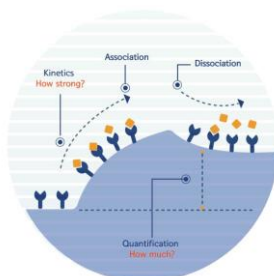


iMSPR series

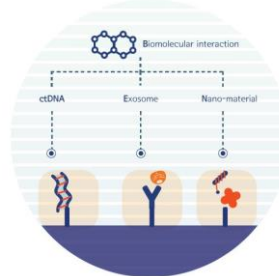
The iMSPR series is a real-time monitoring and analysis system for label-free intermolecular binding based on surface plasmon resonance (SPR) phenomenon. Through the iMSPR series, new biosensors, biomarkers, and receptors can be developed, or new drug candidates can be discovered. In addition, it can evaluate pharmaceutical quality and can be used for medical diagnosis. Meet the iMSPR series of various configurations, from the basic manual model iMSPR-mini to the fully automated advanced model iMSPR-ProX model.



Prism couple type



Rate/Equilibrium



Protein, Peptide,  
DNA, Chemicals, Cells

iMSPR models

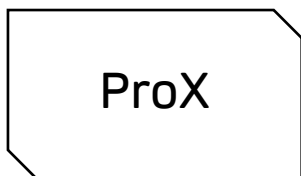
| Model name                     | iMSPR-ProX   | iMSPR-Pro                                      | iMSPR-mini                                     | iMSPR-Lab   |
|--------------------------------|--|--|--|---|
| Cat. No                        | INPX1000   | INPR1000                                       | INMN3000                                       | INLB1000  |
| Channels                       | 2  | 2  | 2  | 2   |
| Channel type                   | U type (connected)                                   | U type (connected)                             | I type (individual)                            | I type (individual)                               |
| Degasser                       | Built in   | Built in                                       | No   | No  |
| Operation guide                | Yes  | Yes  | No   | No  |
| Automatic kinetics evaluation  | Yes  | Yes  | No   | Not including                                     |
| Thermodynamics                 | Yes (optional)                                       | Yes (optional)                                 | No   | No  |
| Sample injection               | Autosampler  | Manual injection using syringe                 | Manual injection using pump tubing             | Manual injection using pump tubing                |
| Noise level                    | 0.1 RU   | 0.1 RU   | 0.1 RU   | 0.1 RU  |
| Incident angle range           | 10   | 10   | 6  | 40  |
| Incident angle change          | No   | No   | No   | Yes   |
| Applications                   | Drug Screening<br>Concentration/affinity<br>Kinetics | Yes/No<br>Affinity<br>Kinetics                 | Yes/No<br>Affinity<br>Sensor development       | Sensor development<br>Gas sensing<br>Film/solvent |
| GxP operation (21 CFR Part 11) | Yes  | Yes (optional)                                 | No   | No  |
| Recommended customers          | Common facility<br>Pharmaceutical company            | Personal lab of university/<br>Research center | Personal lab of university/<br>Research center | Personal lab of university/<br>Research center    |

# Representative Sensor chips

| Application<br>(ligand-analyte)                  | Suggested chips   | Product Name                            | Product #                         |
|--|---|---|-----------------------------------|
| Proteins-Proteins                                | Planar carboxyl linker monolayer chip<br>Carboxyl modified dextran chip                 | COOH-Au chip<br>C-Dex100                | PCCH1000<br>DCCH1100              |
| Proteins-chemicals                               | Linear polycarboxylate chip<br>Carboxyl modified dextran chip                           | HC1000M<br>C-Dex100                     | HCCH101KX<br>DCCH1100             |
| Proteins-vesicles                                | Planar carboxyl linker monolayer chip   | COOH-Au chip                            | PCCH1000                          |
| Biotinylated (Avitag) proteins-Analytes          | Neutravidin immobilized sensor chips  | Avidin-Au chip<br>A-Dex100<br>NAHC1000M | PCAV1000<br>DCAV1100<br>HCAV101KX |
| Histag proteins-Analytes                         | NTA sensor chips  | NTA-Au chip<br>NiHC1000M                | PCNT1000<br>NCNT101K              |
| Lipids-Analytes                                  | Hydrophobic linker monolayer chip<br>Lipophilic anchor dextran chip                     | HP-Au chip<br>LD chip                   | PCHP1000<br>DCLD1500X             |
| Immobilization of DNA and Peptide on sensor chip | Requiring biotinylation of ligand DNA or Peptide<br>Neutravidin immobilized sensor chip | Avidin-Au chip<br>A-Dex100<br>NAHC1000M | PCAV1000<br>DCAV1100<br>HCAV101KX |

# Reagent kits

| Product                         | Product # | Purpose of use                             | Contents   |
|---------------------------------|-----------|--|--|
| Starter kit<br>(amine coupling) | IMSA1000  | Operation kit for SPR starter              | EDC solution 1 ml<br>NHS solution, 1 ml<br>Blocking solution, 1 ml<br>1M NaCl borate buffer, 2 ml<br>Immobilization buffer, 1 ml<br>Regeneration buffer, 2 ml x 2<br>Protein A (Ligand), 50 ul<br>hIgG (Analyte), 50 ul<br>10X HBST, 50 ml |
| Amine coupling kit              | IMAM1000  | Covalent immobilization of ligand proteins | EDC 1 g (Powder)<br>NHS solution, 25 ml<br>Blocking solution, 30 ml<br>1M NaCl borate buffer, 50 ml<br>Acetate buffer 4.0, 25 ml<br>Acetate buffer 5.0, 25 ml<br>10X HBST, 50 ml   |
| NTA coupling kit                | IMNT1000  | Immobilization of Histag proteins          | 350mM EDTA solution<br>5mM NiCl <sub>2</sub> HBSTE solution<br>4M Imidazole<br>10XHBST, 50m  |



iMSPR-ProX model is a fully automatic SPR system with auto sampler. This device is not simply equipped with an autosampler, but if you prepare a sample to be analyzed in the autosampler, the device also derives kinetic evaluation results.

**This is a true sample-to-answer system.**

ProX can install two 96-well plates at a time, enabling large-capacity screening of candidate drugs, which is the initial stage of new drug development.

Now you can dedicate your analysis to the fully automated ProX and spend your time doing more important things that are more important to you.

|           |  |
|-----------|--|
| Including | iMSPR-ProX main system (1ea), Autosampler (1ea), 48 vials rack (1ea), 2 channels U-type Fluidics module (1ea), Prism holder (1ea), Detach tool (1ea), PC (1ea), Tracedrawer SW (1cp), Flat tweezer (1ea), Matching oil (3ml), USB cable (1ea), Sensor chip storage kit (1ea) |
| Warranty  | 2 years  |

### iMSPR-ProX main system



|  |  |
|--|--|
| SPR type   | Angular interrogation, Prism coupling  |
| Channels/ Channel volume   | Channel 1: Ligand channel, Channel 2: Reference channel<br>Channel 2-1 (Connected mode), 500 nL  |
| Light source   | 770 nm LED   |
| Detector   | 2D CMOS image sensor, 1/1.2", 2.35MP   |
| Polarizer control  | Auto   |
| Incident light range   | 10°  |
| RIU range  | 1.31 ~ 1.39  |
| Association ( $k_a$ )/Dissociation ( $k_d$ )/Affinity range( $K_D$ ) | $10^3$ to $10^7$ M <sup>-1</sup> s <sup>-1</sup> / $10^{-1}$ to $10^{-5}$ s <sup>-1</sup> / $10^{-3}$ to $10^{-12}$ M                    |
| Noise level (single channel)   | 0.1 RU   |
| General analysis time/sample   | 2~15 min   |
| Main application   | Yes/No binding, Rate on/off constants / Equilibrium constant<br>Drug screening (discovery), Pharmaceutical QC, Thermodynamics (optional) |
| Analytes   | Proteins, DNA/RNA, Peptides, Small compounds, Polysaccharides, Lipids, Viruses, Cells  |
| Temperature range (TCU built in model)                               | 10°C below ambient temperature to 40°C   |
| Size   | 360 x 466 x 262 (mm), 18kg   |
| Power  | AC100-240V   |
| Materials  | Aluminum (more 90%), PEEK  |

|                      |                                     |
|----------------------|-------------------------------------|
| Pump type            | Peristaltic                         |
| Pump channel No.     | 1                                   |
| Operation tubing     | 3 stop- pharmed tubing, ID: 0.25 mm |
| Flow rate range      | 10~100 ul/min                       |
| Selection valve type | Solenoid                            |
| Degasser volume      | 100 ul                              |

#### Autosample



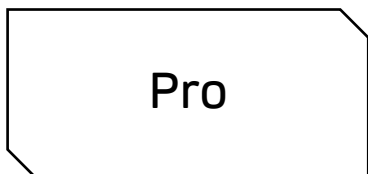
|                              |  |
|------------------------------|--|
| Capacity                     | 48 vials x 2<br>96 well plate x2   |
| Pump type, volume            | Syringe, 500 uL  |
| Injection valve, loop volume | 6 ports - 2 ways, 200 ul (option 100, 1000 uL)   |
| Injection volume             | 1 (more 20 uL recommended) to 200 uL (maximum volume depend on loop volume)  |
| Required sample volume       | Normal mode: Injection volume + 30 uL<br>Air gap mode: Injection volume +75 uL   |
| Prime, cleaning type         | Auto   |
| Sample loading type          | Normal & Air gap mode  |
| Sample storage temperature   | 4°C below ambient temperature  |
| Power                        | 100-240V   |
| Communication                | RS232  |
| Size                         | 300 x 575 x 360 (mm), 21kg   |
| Vials                        | t-LABs; 9-425 2mL screw thread Autosampler glass Vial<br>t-LABs; screw cap with 9mm PTFE/Silicone septa<br>Scilab; 2mL snap top glass Vial<br>Scilab; snap-top PTFE/Sil 11mm septa<br>Wheaton; Snap-/Crimp-Top pp Vial, 0.5~1 mL |

#### PC



|           |            |
|-----------|------------|
| CPU       | i5         |
| RAM       | 16G        |
| Operation | Window 10  |
| Power     | AC100~240V |

iMSPR-ProX is capable of supporting operation in GXP and 21 CFR Part 11 in compliance with regulatory demands.



Pump, bubble eliminator, fluidic module, valve, injector, and SPR sensor are all included in one system to improve user convenience and obtain more precise and reproducible data. Now, according to the program experiment guide provided by icluebio, you can sequentially initialize the experiment, check that the sensor chip is properly installed, and perform interval calibration. After setting the ligand molecule immobilization step and the sequence of the analyte binding experiment, all you need to do is insert one by one the sample into the sample inlet according to the instructions of the program guide. The acquired data can be automatically evaluated through the built-in rate/equilibrium constant analysis program. Now perform more precise and reproducible binding analysis with the automated iMSPR-Pro.

|           |  |
|-----------|--|
| Including | iMSPR-Pro main system (1ea), 2 channels U-type Fluidics module (1ea), Prism holder (1ea), Detach tool (1ea), PC (1ea), Tracedrawer SW (1cp)<br>Flat tweezer (1ea), Matching oil (3ml), USB cable (1ea) |
| Warranty  | 1 years  |

#### iMSPR-Pro main system



|  |   |
|--|---|
| SPR type   | Angular interrogation, Prism coupling   |
| Channels/ Channel volume   | Channel 1: Ligand channel, Channel 2: Reference channel<br>Channel 2-1 (Connected mode), 500 nL   |
| Light source   | 770 nm LED  |
| Detector   | 2D CMOS image sensor, 1/1.2", 2.35MP  |
| Polarizer control  | Auto  |
| Incident light range   | 10°   |
| RIU range  | 1.31 ~ 1.39   |
| Association ( $k_a$ )/Dissociation ( $k_d$ )/Affinity range( $K_D$ ) | $10^3$ to $10^7$ M <sup>-1</sup> s <sup>-1</sup> / $10^{-1}$ to $10^{-5}$ s <sup>-1</sup> / $10^{-3}$ to $10^{-12}$ M                       |
| Noise level (single channel)   | 0.1 RU  |
| General analysis time/sample   | 2~15 min  |
| Main application   | Yes/No binding, Rate on/off constants / Equilibrium constant<br>Drug screening (discovery), Pharmaceutical QC,<br>Thermodynamics (optional) |
| Analytes   | Proteins, DNA/RNA, Peptides, Small compounds,<br>Polysaccharides, Lipids, Viruses, Cells  |
| Temperature range (TCU built in model)                               | 10°C below ambient temperature to 40°C  |
| Size   | 360 x 466 x 262 (mm), 18kg  |
| Power  | AC100-240V  |
| Materials  | Aluminum (more 90%), PEEK   |

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|                              |   |
|------------------------------|---|
| Pump type                    | Peristaltic   |
| Pump channel No.             | 1   |
| Operation tubing             | 3 stop- pharmed tubing, ID: 0.25 mm   |
| Flow rate range              | 1~100 uL/min  |
| Injection valve, loop volume | 6 ports - 2 ways, 200 uL (option 100, 1000 uL)                              |
| Injection volume             | 1 (more 20 uL recommended) to 200 uL (maximum volume depend on loop volume) |
| Required sample volume       | Injection volume + 30 uL  |
| Selection valve type         | Solenoid  |
| Degasser volume              | 100 uL  |

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PC




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|           |            |
|-----------|------------|
| CPU       | i5         |
| RAM       | 8G         |
| Operation | Window 10  |
| Power     | AC100~240V |

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iMSPR-Pro is capable of supporting operation in GXP and 21 CFR Part 11 in compliance with regulatory demands.



icluebio thought about the SPR sensor that can be used flexibly for various applications that researchers, product developers, and medical fields want to implement. It should be as small as possible so that it can be installed anywhere, it should be easy to connect to other systems, and it should be simple so that anyone can use it. This is why the iMSPR-mini was born.

mini is an open platform built to do anything you can imagine. Just connect to your mobile PC via USB and you can use it right away without additional power supply. With mini, you can accurately understand surface plasmon resonance phenomena and use it intuitively.

Unleash the research you want to do with the small but powerful iMSPR-mini.

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|           |   |
|-----------|---|
| Including | iMSPR-mini main system (1ea), Peristaltic pump with 2 channels (1ea), 2 channels I-type Fluidics module (1ea), Prism holder (1ea), Detach tool (1ea), PC (1ea), Flat tweezer (1ea), Matching oil (3ml), USB cable (1ea) |
| Warranty  | 1 years   |

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iMSPR-mini main system




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|                              |   |
|------------------------------|---|
| SPR type                     | Angular interrogation, Prism coupling   |
| Channels/ Channel volume     | 2 channels (individual), 500 nl   |
| Light source                 | 770 nm LED  |
| Detector                     | 2D CMOS image sensor, 1/1.8", 1.3 MP  |
| Polarizer control            | Manual  |
| Incident light range         | 6°  |
| RIU range                    | 1.31 ~ 1.37   |
| Affinity range               | pM ~ mM   |
| Noise level (single channel) | 0.1 RU  |
| General analysis time/sample | 2~15 min  |
| Main application             | Yes/No binding, Rate on/off constants / Equilibrium constant (required evaluation SW), Biosensor development, Academic, Diagnostics |
| Analytes                     | Proteins, DNA/RNA, Peptides, Small compounds, Polysaccharides, Lipids, Viruses, Cells   |
| Size                         | 306 x 140 x 156 (mm), 4kg   |
| Power                        | 5V USB3.0   |
| Materials                    | Aluminum (more 90%), PEEK   |

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Pump



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|                  |                                     |
|------------------|-------------------------------------|
| Pump type        | Peristaltic                         |
| Pump channel No. | 2                                   |
| Operation tubing | 3 stop- pharmed tubing, ID: 0.25 mm |
| Flow speed       | 0.1~100 rpm                         |
| Flow rate range  | 1 ~ 100 ul/min                      |
| Size             | 232 x 142 x 149 mm, 2.38 kg         |
| Power            | AC 100~240V                         |

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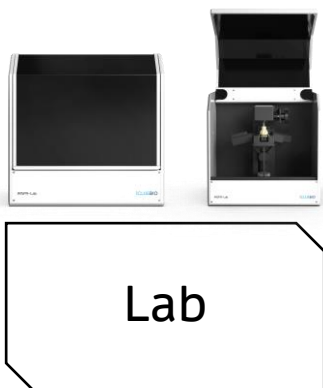
PC



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|           |            |
|-----------|------------|
| CPU       | i5         |
| RAM       | 8G         |
| Operation | Window 10  |
| Power     | AC100~240V |

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SPR sensors have been used in a wide variety of fields over the past few decades, not just in the bio fields. The iMSPR-Lab is a variable incidence-center angle device that can be used in the widest range of applications. It is the only model in the iMSPR series capable of gas sensing and can be used for research on films with high refractive index. Of course, you can basically monitor the binding between biomaterials that iMSPR-mini can do. Conduct your various research using the versatile model iMSPR-Lab.

|           |  |
|-----------|--|
| Including | iMSPR-Lab main system (1ea), Peristaltic pump with 2 channels (1ea), 2 channels I-type Fluidics module (1ea), Prism holder (1ea), Detach tool (1ea), PC (1ea), Flat tweezer (1ea), Matching oil (3ml), USB cable (1ea) |
| Warranty  | 1 years  |

#### iMSPR-Lab 본체 사양



|                              |   |
|------------------------------|---|
| SPR type                     | Angular interrogation, Prism coupling   |
| Channels/ Channel volume     | 2 channels (individual), 500 nl   |
| Light source                 | 770 nm LED  |
| Detector                     | 2D CMOS image sensor, 1/1.8", 1.3 MP  |
| Polarizer control            | Manual  |
| Incident light range         | 6°  |
| Incident center angle range  | 38 ~ 78°  |
| RIU range                    | 1.00 ~ 1.4x   |
| Affinity range               | pM ~ mM   |
| Noise level (single channel) | 0.1 RU  |
| Main application             | 2~15 min  |
| Main application             | Yes/No binding, Rate on/off constants / Equilibrium constant (required evaluation SW), Biosensor development, Academic, Diagnostics, Polymer film, Gas sensor |
| Analytes                     | Gas, Proteins, DNA/RNA, Peptides, Small compounds, Polysaccharides, Lipids, Viruses, Cells  |
| Power                        | AC 100~240V   |
| Materials                    | Aluminum (more 90%), PEEK   |

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Pump



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|                  |                                     |
|------------------|-------------------------------------|
| Pump type        | Peristaltic                         |
| Pump channel No. | 2                                   |
| Operation tubing | 3 stop- pharmed tubing, ID: 0.25 mm |
| Flow speed       | 0.1~100 rpm                         |
| Flow rate range  | 1 ~ 100 uL/min                      |
| Size             | 232 x 142 x 149 mm, 2.38 kg         |
| Power            | AC 100~240V                         |

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PC



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|           |            |
|-----------|------------|
| CPU       | i5         |
| RAM       | 8G         |
| Operation | Window 10  |
| Power     | AC100~240V |

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**[www.icluebio.com](http://www.icluebio.com)**

icluebio's iMSPR series is manufactured in Korea, and is finally delivered to the customer through precise quality inspection by a specialist. The device experts directly deliver, install free of charge, and perform IQ/OQ right on the spot. After all on-site tests are completed, you will receive training in operation from the education experts in the contents of the handbook.

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