GoPAGE™ Precast Gel

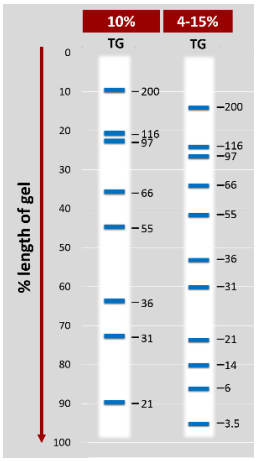
Quick & Clear

Gel Type: TGN Gel
Gel wells: 12 wells
Cassette size: Midi (10 x 10 cm)
Gel thickness: 1.0 mm

Gel percentage	10%	4-15%
Catalog No.	GL5210	GL5510

Storage and stability- Store GoPAGE™ Precast Gels at 4°C for periods up to 12 months. **Do not freeze GoPAGE™ Precast Gels.**
Do not press GoPAGE™ Precast Gels

GoPAGE™ TGN Gel Migration Charts



Bands correspond to the migration of Mark12 Unstained Standard.

2235.1 2 gels (GL5210)
2235.2 10 gels (GL5210)

2236.1 2 gels (GL5510)
2236.2 10 gels (GL5510)

Description

GoPAGE™ TGN (**T**ris-**G**lycine **N**ovel) Precast Gels are ready-to-use acrylamide gels for SDS-PAGE running in Tris-Glycine buffer system. With unique formula, GoPAGE™ TGN Precast Gels perform enhanced resolution, sharper bands, and longer shelf life as compared with conventional Laemmli Tris-HCl gels. The protein migration patterns in GoPAGE™ TGN series, however, are similar with typical Laemmli Tris-HCl gels, and thus GoPAGE™ TGN Precast Gels are compatible to traditional SDS-PAGE and subsequent analyses.
GoPAGE™ TGN Precast Gels are available in gradient (4 to 15%) and fixed (10%) concentrations of polyacrylamide in 12-well formats. Two available cassette sizes, Mini (10 x 8.3 cm) and Midi (10 x 10 cm), are compatible with most popular protein electrophoresis systems. GoPAGE™ Mini (GL4XXX) Gels are suitable for Bio-Rad® and other systems. GoPAGE™ Midi (GL5XXX) Gels are suitable for Invitrogen® XCell SureLock® Mini-Cell, Hoefer SE260, and other systems.

Key Features:

User-friendly gel cassette:
- **Easy to use-** No comb or tape to remove.
- **Easy to load samples-** Numbered wells; extended and fixed well separator to prevent sample carryover; loading volume up to 30 µl/wells.
- **Easy to monitor-** Transparent reference lines on the gel cassette help to monitor electrophoresis.

Unique gel formula:
- **Sharpness-** Enhances band sharpness
- **Long shelf life-** Up to 12 months when stored at 4°C

Broad compatibility:
- **Wide separation range-** Available as homogeneous and adjusted gradient gels for a wide range of protein separation.
- **Compatibility-** Two cassette sizes suitable for most mini-gel tanks.

Procedures for Using GoPAGE™ TGN Precast Gel

Recommendations/Tips for Gel Running

1. Always use fresh 1X running buffer for the inner cathode chamber.
2. Before sample loading, rinse the wells to remove storage buffer.
3. Try 200 V first, and optimize the voltage and running time if needed.
4. After gel running, keep gel under moisture, and carefully detach the gel from cassette with water.

Sample Preparation for SDS-PAGE

1. Mix protein sample with 2X sample buffer.
2. Heat the diluted samples at 95°C for 5 min or at 70°C for 10 min.
3. Cool the diluted samples to 4°C and spin down the water condensed on tube surface. (If there is high viscosity part at bottom of tube, transfer supernatant to a new tube.)

Prepare GoPAGE™ for Sample Loading

1. Open the plastic bag of GoPAGE™ Precast Gel.
2. Briefly rinse the gel cassette with ddH_2O and throw out the gel storage buffer within the wells. Avoid squeezing the gel.
3. Adapt GoPAGE™ to electrophoresis system; instructions are provided below. (XCell SureLock® Mini-Cell Electrophoresis System is recommended.)
4. Use a pipette to gently wash the wells with running buffer to remove residual storage buffer.
5. Fill the wells with running buffer prior to sample loading.
6. Load samples and pre-stained protein marker into numbered wells.
7. Fill both inner and outer chambers with running buffer to the highest level. Ensure gel wells are completely covered.

Power Setting for Running GoPAGE™

Optimize the voltage and running time if needed.

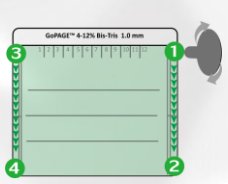
	150 V	200 V*2	250 V*3	300 V*3
Running Time*1	65-85 mins	55-75 mins	45-65 mins	30-50 mins
Expected Current				
Initial (per gel)	30-40 mA	60-70 mA	90-100 mA	110-120 mA
Final (per gel)	10-20 mA	20-25 mA	25-30 mA	40-50 mA
Expected temperature	25-30°C	25-30 °C	25-35°C	25-35°C

*1 **Run GoPAGE™ until dye front reaches to 1 cm from the bottom of gel.** Running time varies depending on gel percentage, running buffer, temperature, and power supply.
*2 Try 200 V first, and optimize the voltage and running time if needed.
*3 For higher voltage conditions, please use **fresh** running buffer for inner and outer chambers.

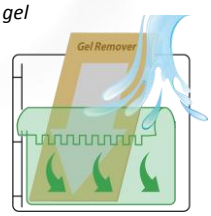
Remove GoPAGE™ Gel from Cassette

Open cassette immediately after electrophoresis. Avoid gel drying.

1. Insert the cassette opener into corners of cassette.
2. Sequentially pry the opener to separate the two plates.
3. Gently pull two plates apart from **the top** of cassette, allowing gel to rest on one plate. *If necessary, use gel remover and water flow to help gel rest on one plate.*



4. Carefully detach the gel from the plate with water flow and gel remover.
   - *Under water flow, insert gel remover between gel and cassette from the well site of gel.*
   - *Slowly push gel remover to the bottom of gel until gel is fully detached.*
   - *Avoid diagonally peeling the gel from the corner.*
   - *If necessary, cut well separators with gel remover.*



5. Gently remove the gel for further staining or Western blotting.

Gel Staining

Proteins separated using GoPAGE™ Precast Gels can be further stained with most popular staining reagents, such as Coomassie dyes (R-250 or G-250), Silver-stain solution, and FluoroStain™ Protein Fluorescent Staining Dye. (Cat. No. PS1000)

Transferring Protein from GoPAGE™ to Blotting Membrane

1. After protein separation using GoPAGE™, gently detach GoPAGE™ from cassette and then equilibrate the gel in transfer buffer.
2. Pre-soak blotting membrane and filter papers in transfer buffer.
   **Activate PVDF membrane in methanol before soaking in transfer buffer.*
   ***Prepare 6 filter papers for one gel/membrane sandwich.*
3. Assemble transfer sandwich by orientating cathode, sponge, filter papers, gel, membrane, filter papers, sponge, and anode. The protein goes to the direction of cathode to anode.
4. Carefully move roller over the gel/membrane to remove air bubbles and excess buffer until complete contact is established.
5. Insert transfer cassette into transfer module. Notice that black side of cassette should be next to black side of module.
6. Fill transfer tank with pre-cooled transfer buffer to the highest water level.
7. Set constant voltage at 100 V. Transfer for 90 minutes at low temperature condition.

Supplemental Information for Using GoPAGE™ Precast Gel

Adapting GoPAGE™ Midi Precast Gels to XCell SureLock® Mini-Cell Electrophoresis System

1. Place the GoPAGE Midi Precast Gels with notched plate facing toward upper buffer chamber. No extra adapter is needed.
2. Seat the gels on the bottom of XCell SureLock® Mini-Cell and lock into place with the gel tension wedge.
3. Fill the upper chamber with running buffer to check tightness of seal. If necessary, reassemble and check the seal again.
4. Fill upper and lower chambers with running buffer. Ensure gel wells are completely covered.

Adapting GoPAGE™ Midi Precast Gels to Hoefer SE260 Mini-vertical Gel Electrophoresis Unit

1. Place the GoPAGE Midi Precast Gels with notched plate facing toward the gasket of upper buffer chamber core.
2. Seat the gels on the bottom of the lower chamber and center the gel cassette so that gasket seals both sides.
3. Gently press gel cassette toward gasket and then lock gel cassette with two clamps.
4. Fill the upper chamber with 1X running buffer to check tightness of seal. If necessary, reassemble and check the seal again.
5. Fill upper and lower chambers with 1X running buffer. Ensure gel wells are completely covered.

Adapting GoPAGE™ Midi Precast Gels to other electrophoresis system, please follow the manufacturer's instruction.

Buffer recipes

2X sample buffer with reducing agent

62.5 mM Tris-HCl pH 6.8, 2% SDS, 25% (v/v) glycerol, 0.01% bromophenol blue, 5% β-mercaptoethanol or 100 mM DTT (added fresh)

10X Tris-Glycine running buffer

30.0 g Tris base, 114.0 g Glycine, 10.0 g SDS.
Bring up the volume to 1 L with ddH_2O.

1X running buffer

Dilute 100 ml 10X running buffer with 900 ml ddH_2O.

10X transfer buffer

30.0 g Tris base, 144.0 g Glycine. Bring up the volume to 1 L with ddH_2O.

1X transfer buffer

*Cool 1X transfer buffer to 4°C before using.
Dilute 100 ml 10X transfer buffer with 200 ml methanol and 700 ml ddH_2O.
**Add SDS to 0.1% to promote transfer of high molecular weight proteins.

Related Products: GoPAGE™ Precast Gel

Cat. No.	Product Name	Cassette size
GL2110	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 8%	Mini (10 X 8.3 cm)
GL2310	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 12%	
GL2510	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 4-12%	
GL3110	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 8%	Midi (10 X 10 cm)
GL3310	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 12%	
GL3510	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 4-12%	
GL4210	GoPAGE™ TGN Precast Gel, 12 wells, 10%	Mini (10 X 8.3 cm)
GL4510	GoPAGE™ TGN Precast Gel, 12 wells, 4-15%	

Troubleshooting Guidelines

Problem	Possible Cause	Suggested Solution
Bubbles between gel and cassette	Gel has been frozen or stored at wrong temperature.	Store GoPAGE Precast Gels at 4°C.
Buffer leaking from the inner chamber	Untight assembly of gels to the electrode modules	Reassemble GoPAGE gels into the electrode modules. Fill outer chamber with 1X running buffer to the highest level.
Samples do not sink into the wells.	Residual gel storage buffer in the wells	Rinse the gel wells with ddH_2O or 1X running buffer before loading.
	Insufficient sample buffer	Use more sample buffer to prepare samples.
Gels run faster or more slowly than expected.	Incorrect running buffer	Check buffer composition. Use fresh 1X running buffer for inner chamber.
Crooked bands at middle or bottom of gel	Gel has been frozen or stored at wrong temperature.	Store GoPAGE Precast Gels at 4°C.
	Incorrect running buffer	Check buffer composition. Use fresh 1X running buffer for inner chamber.
Band pattern curves toward one or both sides of gel.	Buffer leaking from the inner chamber	Check assembly of gels into the electrode modules.
	Excessive heating of gel	Check buffer composition. Or dilute running buffer to 0.5-0.75X. Do not exceed recommended running conditions.
	Insufficient buffer in inner or outer buffer chamber	Fill inner and outer chambers to completely cover gel wells.
Poor resolution or fuzzy bands	Excessive heating of gel	Check buffer composition. Do not exceed recommended running conditions.
	Incorrect running buffer	Check buffer composition.
Bands are missing on the membrane after Western transferring.	Proteins move in the wrong direction	Check the order of gel/membrane sandwich assembly, the direction of transfer cassette in transfer modules, and the polarity of connections to power supply.
Swirls or missing bands; bands trail off in multiple directions on the membrane after Western transferring.	Contact between the membrane and the gel was poor; Air bubbles or excess buffer remains between the blotting membrane and the gel.	Use thicker/more filter paper in the gel/membrane sandwich Remove air bubbles and excess buffer between gel and membrane by carefully moving the roller over the membrane.
Apparent molecular sizes of prestained protein markers are different as indicated.	Prestained protein markers used have not been calibrated for use with GoPAGE gels. Dyes for staining protein markers affect the migration patterns of prestained proteins in different buffer systems.	Calibrate prestained protein markers against unstained proteins of known size or use SMOBIO's ExcelBand™ Protein Markers.

GoPAGE™ Precast Gel

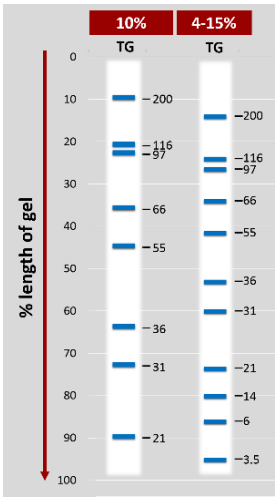
Quick & Clear

Gel Type: TGN Gel **Cassette size:** Mini (10 x 8.3 cm)
Gel wells: 12 wells **Gel thickness:** 1.0 mm

Gel percentage	10%	4-15%
Catalog No.	GL4210	GL4510

Storage and stability- Store GoPAGE™ Precast Gels at 4°C for periods up to 12 months. **Do not freeze GoPAGE™ Precast Gels.**
Do not press GoPAGE™ Precast Gels

GoPAGE™ TGN Gel Migration Charts



Bands correspond to the migration of Mark12 Unstained Standard.

2233.1 2 gels (GL4210)
2233.2 10 gels (GL4210)

2234.1 2 gels (GL4510)
2233.2 10 gels (GL4510)

Description

GoPAGE™ TGN (**T**ris-**G**lycine **N**ovel) Precast Gels are ready-to-use acrylamide gels for SDS-PAGE running in Tris-Glycine buffer system. With unique formula, GoPAGE™ TGN Precast Gels perform enhanced resolution, sharper bands, and longer shelf life as compared with conventional Laemmli Tris-HCl gels. The protein migration patterns in GoPAGE™ TGN series, however, are similar with typical Laemmli Tris-HCl gels, and thus GoPAGE™ TGN Precast Gels are compatible to traditional SDS-PAGE and subsequent analyses.
GoPAGE™ TGN Precast Gels are available in gradient (4 to 15%) and fixed (10%) concentrations of polyacrylamide in 12-well formats. Two available cassette sizes, Mini (10 x 8.3 cm) and Midi (10 x 10 cm), are compatible with most popular protein electrophoresis systems. GoPAGE™ Mini (GL4XXX) Gels are suitable for Bio-Rad® and other systems. GoPAGE™ Midi (GL5XXX) Gels are suitable for Invitrogen® XCell SureLock® Mini-Cell, Hoefer SE260, and other systems.

Key Features:

User-friendly gel cassette:
- **Easy to use-** No comb or tape to remove.
- **Easy to load samples-** Numbered wells; extended and fixed well separator to prevent sample carryover; loading volume up to 40 µl/wells.
- **Easy to monitor-** Transparent reference lines on the gel cassette help to monitor electrophoresis.

Unique gel formula:
- **Sharpness-** Enhances band sharpness
- **Long shelf life-** Up to 12 months when stored at 4°C

Broad compatibility:
- **Wide separation range-** Available as homogeneous and adjusted gradient gels for a wide range of protein separation.
- **Compatibility-** Two cassette sizes suitable for most mini-gel tanks.

Procedures for Using GoPAGE™ TGN Precast Gel

Recommendations/Tips for Gel Running

1. Always use fresh 1X running buffer for the inner cathode chamber.
2. Before sample loading, rinse the wells to remove storage buffer.
3. Try 200 V first, and optimize the voltage and running time if needed.
4. After gel running, keep gel under moisture, and carefully detach the gel from cassette with water.

Sample Preparation for SDS-PAGE

1. Mix protein sample with 2X sample buffer.
2. Heat the diluted samples at 95°C for 5 min or at 70°C for 10 min.
3. Cool the diluted samples to 4°C and spin down the water condensed on tube surface. (If there is high viscosity part at bottom of tube, transfer supernatant to a new tube.)

Prepare GoPAGE™ for Sample Loading

1. Open the plastic bag of GoPAGE™ Precast Gel.
2. Briefly rinse the gel cassette with ddH_2O and throw out the gel storage buffer within the wells. Avoid squeezing the gel.
3. Adapt GoPAGE™ to electrophoresis system; instructions are provided below. (BioRad Mini-PROTEAN® Core Electrophoresis System is recommended.)
4. Use a pipette to gently wash the wells with running buffer to remove residual storage buffer.
5. Fill the wells with running buffer prior to sample loading.
6. Load samples and pre-stained protein marker into numbered wells.
7. Fill both inner and outer chambers with running buffer to the highest level. Ensure gel wells are completely covered.

Power Setting for Running GoPAGE™

Optimize the voltage and running time if needed.

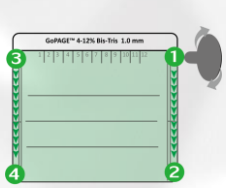
	150 V	200 V*2	250 V*3	300 V*3
Running Time*1	40-60 mins	30-50 mins	20-40 mins	15-25 mins
Expected Current				
Initial (per gel)	30-40 mA	60-70 mA	90-100 mA	110-120 mA
Final (per gel)	10-20 mA	20-25 mA	25-30 mA	40-50 mA
Expected temperature	25-30°C	25-30 °C	25-35°C	25-35°C

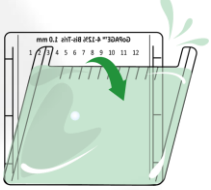
*1 Running time varies depending on gel percentage, running buffer, temperature, and power supply.
*2 **Try 200 V first,** and optimize the voltage and running time if needed.
*3 For higher voltage conditions, please use **fresh running buffer** for inner and outer chambers.

Remove GoPAGE™ Gel from Cassette

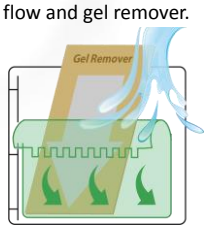
Open cassette immediately after electrophoresis. Avoid gel drying.

1. Insert the cassette opener into corners of cassette.
2. Sequentially pry the opener to separate the two plates.
3. Gently pull two plates apart from **the top** of cassette, allowing gel to rest on one plate. *If necessary, use gel remover and water flow to help gel rest on one plate.*





4. Carefully detach the gel from the plate with water flow and gel remover.
   - *Under water flow, insert gel remover between gel and cassette from the well site of gel.*
   - *Slowly push gel remover to the bottom of gel until gel is fully detached.*
   - *Avoid diagonally peeling the gel from the corner.*
   - *If necessary, cut well separators with gel remover.*



5. Gently remove the gel for further staining or Western blotting.

Gel Staining

Proteins separated using GoPAGE™ Precast Gels can be further stained with most popular staining reagents, such as Coomassie dyes (R-250 or G-250), Silver-stain solution, and FluoroStain™ Protein Fluorescent Staining Dye. (Cat. No. PS1000)

Transferring Protein from GoPAGE™ to Blotting Membrane

1. After protein separation using GoPAGE™, gently detach GoPAGE™ from cassette and then equilibrate the gel in transfer buffer.
2. Pre-soak blotting membrane and filter papers in transfer buffer.
   **Activate PVDF membrane in methanol before soaking in transfer buffer.*
   ***Prepare 6 filter papers for one gel/membrane sandwich.*
3. Assemble transfer sandwich by orientating cathode, sponge, filter papers, gel, membrane, filter papers, sponge, and anode. The protein goes to the direction of cathode to anode.
4. Carefully move roller over the gel/membrane to remove air bubbles and excess buffer until complete contact is established.
5. Insert transfer cassette into transfer module. Notice that black side of cassette should be next to black side of module.
6. Fill transfer tank with pre-cooled transfer buffer to the highest water level.
7. Set constant voltage at 100 V. Transfer for 90 minutes at low temperature condition. Pre-stained protein marker should be visible on the membrane after transfer is completed. Transfer of proteins to the membrane can be checked using Ponceau S staining before blocking step.

Supplemental Information for Using GoPAGE™ Precast Gel

Adapting GoPAGE™ Mini Precast Gel to BioRad Mini-PROTEAN® Core

1. Place the GoPAGE™ Mini Precast Gel with notched plate facing toward inner chamber.
2. Align the notched plate to ensure the edge sits just below the notch at the top of green gasket.
3. Gently press gel cassette toward green gasket and then lock gel cassette with two green arms. Avoid squeezing the cassette and gel.
4. Fill inner chamber with running buffer to check tightness of seal. If necessary, reassemble and check the seal again.
5. Fill inner chamber with running buffer to ensure gel wells are completely covered.
6. Fill outer chamber with running buffer to the highest level.

Adapting GoPAGE™ Mini Precast Gels to other electrophoresis system, please follow the manufacturer's instruction.

Buffer recipes

2X sample buffer with reducing agent

62.5 mM Tris-HCl pH 6.8, 2% SDS, 25% (v/v) glycerol, 0.01% bromophenol blue, 5% β-mercaptoethanol or 100 mM DTT (added fresh)

10X Tris-Glycine running buffer

30.0 g Tris base, 144.0 g Glycine, 10.0 g SDS.
Bring up the volume to 1 L with ddH_2O.

1X running buffer

Dilute 100 ml 10X running buffer with 900 ml ddH_2O.

10X transfer buffer

30.0 g Tris base, 144.0 g Glycine. Bring up the volume to 1 L with ddH_2O.

1X transfer buffer

*Cool 1X transfer buffer to 4°C before using.
Dilute 100 ml 10X transfer buffer with 200 ml methanol and 700 ml ddH_2O.
**Add SDS to 0.1% to promote transfer of high molecular weight proteins.

Related Products: GoPAGE™ Precast Gel

Cat. No.	Product Name	Cassette size
GL2110	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 8%	Mini (10 X 8.3 cm)
GL2310	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 12%	
GL2510	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 4-12%	
GL3110	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 8%	Midi (10 X 10 cm)
GL3310	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 12%	
GL3510	GoPAGE™ Bis-Tris Precast Gel, 12 wells, 4-12%	
GL5210	GoPAGE™ TGN Precast Gel, 12 wells, 10%	Midi (10 X 10 cm)
GL5510	GoPAGE™ TGN Precast Gel, 12 wells, 4-15%	

Troubleshooting Guidelines

Problem	Possible Cause	Suggested Solution
Bubbles between gel and cassette	Gel has been frozen or stored at wrong temperature.	Store GoPAGE Precast Gels at 4°C.
Buffer leaking from the inner chamber	Untight assembly of gels to the electrode modules	Reassemble GoPAGE gels into the electrode modules. Fill outer chamber with 1X running buffer to the highest level.
Samples do not sink into the wells.	Residual gel storage buffer in the wells	Rinse the gel wells with ddH_2O or 1X running buffer before loading.
	Insufficient sample buffer	Use more sample buffer to prepare samples.
Gels run faster or more slowly than expected.	Incorrect running buffer	Check buffer composition. Use fresh 1X running buffer for inner chamber.
Crooked bands at middle or bottom of gel	Gel has been frozen or stored at wrong temperature.	Store GoPAGE Precast Gels at 4°C.
	Incorrect running buffer	Check buffer composition. Use fresh 1X running buffer for inner chamber.
Band pattern curves toward one or both sides of gel.	Buffer leaking from the inner chamber	Check assembly of gels into the electrode modules.
	Excessive heating of gel	Check buffer composition. Or dilute running buffer to 0.5-0.75X. Do not exceed recommended running conditions.
	Insufficient buffer in inner or outer buffer chamber	Fill inner and outer chambers to completely cover gel wells.
Poor resolution or fuzzy bands	Excessive heating of gel	Check buffer composition. Do not exceed recommended running conditions.
	Incorrect running buffer	Check buffer composition.
Bands are missing on the membrane after Western transferring.	Proteins move in the wrong direction	Check the order of gel/membrane sandwich assembly, the direction of transfer cassette in transfer modules, and the polarity of connections to power supply.
Swirls or missing bands; bands trail off in multiple directions on the membrane after Western transferring.	Contact between the membrane and the gel was poor; Air bubbles or excess buffer remains between the blotting membrane and the gel.	Use thicker/more filter paper in the gel/membrane sandwich Remove air bubbles and excess buffer between gel and membrane by carefully moving the roller over the membrane.
Apparent molecular sizes of prestained protein markers are different as indicated.	Prestained protein markers used have not been calibrated for use with GoPAGE gels. Dyes for staining protein markers affect the migration patterns of prestained proteins in different buffer systems.	Calibrate prestained protein markers against unstained proteins of known size or use SMOBIO's ExcelBand™ Protein Markers.